bmcsoftware | www.bmc.com

# System and SQL Performance for DB2®
## Customization Guide

### Supporting

ACTIVITY MONITOR for DB2 4.1
Application Performance for DB2 2.1
APPTUNE for DB2 4.1
MAINVIEW for DB2 – Data Collector 4.1
Pool Advisor for DB2 2.3
OPERTUNE for DB2 3.5
OPERTUNE for MQSeries 3.5
SmartDBA System Performance for DB2 2.1
SQL Explorer for DB2 4.1

**November 10, 2003**

## Contacting BMC Software

You can access the BMC Software Web site at http://www.bmc.com. From this Web site, you can obtain information about the company, its products, corporate offices, special events, and career opportunities.

### United States and Canada

**Address** BMC Software, Inc.
2101 CityWest Blvd.
Houston TX 77042-2827

**Telephone** 713 918 8800 or
800 841 2031

**Fax** 713 918 8000

### Outside United States and Canada

**Telephone** (01) 713 918 8800

**Fax** (01) 713 918 8000

Copyright 2003 BMC Software, Inc. All rights reserved.

BMC Software, the BMC Software logos, and all other BMC Software product or service names are registered trademarks or trademarks of BMC Software, Inc.

IBM is a registered trademark of International Business Machines Corporation.

DB2 is a registered trademark of International Business Machines Corporation.

BMC Software considers information included in this documentation to be proprietary and confidential. Your use of this information is subject to the terms and conditions of the applicable End User License Agreement for the product and the proprietary and restricted rights notices included in this documentation.

## Restricted Rights Legend

U.S. Government Restricted Rights to Computer Software. UNPUBLISHED -- RIGHTS RESERVED UNDER THE COPYRIGHT LAWS OF THE UNITED STATES. Use, duplication, or disclosure of any data and computer software by the U.S. Government is subject to restrictions, as applicable, set forth in FAR Section 52.227-14, DFARS 252.227-7013, DFARS 252.227-7014, DFARS 252.227-7015, and DFARS 252.227-7025, as amended from time to time. Contractor/Manufacturer is BMC Software, Inc., 2101 CityWest Blvd., Houston, TX 77042-2827, USA. Any contract notices should be sent to this address.

## Customer Support

You can obtain technical support by using the Support page on the BMC Software Web site or by contacting Customer Support by telephone or e-mail. To expedite your inquiry, please see "Before Contacting BMC Software."

### Support Web Site

You can obtain technical support from BMC Software 24 hours a day, 7 days a week at http://www.bmc.com/support_home. From this Web site, you can

- read overviews about support services and programs that BMC Software offers
- find the most current information about BMC Software products
- search a database for problems similar to yours and possible solutions
- order or download product documentation
- report a problem or ask a question
- subscribe to receive e-mail notices when new product versions are released
- find worldwide BMC Software support center locations and contact information, including e-mail addresses, fax numbers, and telephone numbers

### Support by Telephone or E-mail

In the United States and Canada, if you need technical support and do not have access to the Web, call 800 537 1813. Outside the United States and Canada, please contact your local support center for assistance. To find telephone and e-mail contact information for the BMC Software support center that services your location, refer to the Contact Customer Support section of the Support page on the BMC Software Web site at http://www.bmc.com/support_home.

### Before Contacting BMC Software

Before you contact BMC Software, have the following information available so that Customer Support can begin working on your problem immediately:

- What was the sequence of events leading to the problem?
- Have you had the same problem before? How often?
- Which messages were issued to the terminal?
- What version and maintenance levels are you using of the following products:
  - Application Performance for DB2
  - APPTUNE for DB2
  - SQL Explorer for DB2
  - Pool Advisor for DB2
  - SmartDBA System Performance for DB2
  - MAINVIEW for DB2
  - OPERTUNE for DB2
  - ACTIVITY MONITOR for DB2
  - MAINVIEW for DB2 – Data Collector
  - DB2
  - MVS/OS/390 or z/OS
  - DFP/DFSMS
  - CICS
  - a security package
- Make a copy of the system log containing messages, registers, module names, etc. at the time of the problem.
- Save the batch job output from any job that fails.
- Save the dump if there is one.
- Make a copy of the Maintenance Table ZAP Display (DOMEZAPT), which lists any SUPERZAPs applied.

# Contents

# Figures

# Tables

# About This Book

This book contains detailed information about the System and SQL Performance products for DB2 from BMC Software. It is intended for use by the system programmer or database administrator (DBA) who will install the following products and solutions from the DB2 products distribution tape, compact disc (CD), or Electronic Software Distribution (ESD) image:

- Application Performance for DB2®
- SmartDBA System Performance for DB2
- ACTIVITY MONITOR for DB2
- APPTUNE for DB2
- Pool Advisor for DB2
- SQL Explorer for DB2
- OPERTUNE® for DB2
- OPERTUNE for MQSeries
- MAINVIEW® for DB2 – Data Collector

***NOTE***

If you are using features shared by the System and SQL Performance products, BMC Software recommends that you install maintenance for these products concurrently.

To use this book, you should be familiar with the following items:

- DB2 (IBM Database 2 Universal Database for OS/390 and z/OS)
- MVS (Multiple Virtual Storage)
- JCL (job control language)
- ISPF (Interactive System Productivity Facility)
- your client and host operating systems

For example, you should know how to respond to ISPF panels and how to perform common actions in a window environment (such as choosing menu items and resizing windows).

# How This Book Is Organized

This book is organized as follows:

| Chapter or Appendix Number and Title | Description |
|---|---|
| Chapter 1, "Preparing for Installation" | This chapter provides an overview of the installation process and the Install System. It also includes information that is specific to the products on this tape. |
| Chapter 2, "System and SQL Performance Products" | This chapter discusses the issues that affect installation of the System and SQL Performance products and describes the post-installation and verification steps that are common to these products (but do not involve the use of the Install System). |
| Chapter 3, "SQL Explorer for DB2 Client" | This chapter provides information about installing, configuring, and starting the client for SQL Explorer for DB2. |
| Chapter 4, "SmartDBA Post-Installation Procedures" | This chapter discusses the procedures for installing the components needed to use the SmartDBA System Performance graphical interface. |
| Chapter 5, "OPERTUNE" | This chapter outlines the prerequisites for installing OPERTUNE, along with other installation and security considerations you should examine before proceeding. Post-installation tasks you must perform to complete the installation procedure are also described. |
| Appendix 1, "System and SQL Performance for DB2 Installation Checklist" | This appendix provides information that you need to install and customize the System and SQL Performance products. |
| Appendix 2, "SQL Explorer Default Options" | This appendix describes each default option and shows an example of the default option module. |
| Appendix 3, "Configuring the UIM Server" | This appendix describes the configuration options for the UIM server (SmartDBA System Performance for DB2 only). |

In addition, this book contains a summary of changes and an index.

# Related Documentation

BMC Software products are supported by several types of documentation:

- online and printed books
- online Help
- release notes and other notices

You can find useful information in the following publications:

| Category | Document | Description |
|---|---|---|
| installation | *OS/390 and z/OS Installer Guide* | describes how to use the OS/390 and z/OS Installer to install the products on the tape |
| | *System and SQL Performance for DB2 Customization Guide* | contains pre- and post-installation information for the System and SQL Performance products that supplements the Installer Guide |
| | *MAINVIEW for DB2 Customization Guide* | contains pre- and post-installation information for the MAINVIEW for DB2 product that supplements the Installer Guide (SmartDBA System Performance for DB2 and MAINVIEW for DB2 – Data Collector only) |
| administration | *System and SQL Performance for DB2 Administrator Guide* | describes the administrative functions of the System and SQL Performance products (all products except OPERTUNE) |
| product evaluation | *ACTIVITY MONITOR for DB2 General Information* | provides an overview of the ACTIVITY MONITOR for DB2 product and its major functions |
| | *APPTUNE for DB2 General Information* | provides an overview of the APPTUNE for DB2 product and its major functions |
| | *OPERTUNE for DB2 General Information* | provides an overview of OPERTUNE for DB2 product and its major functions |
| | *OPERTUNE for MQSeries General Information* | provides an overview of OPERTUNE for MQSeries product and its major functions |
| | *Pool Advisor for DB2 General Information* | provides an overview of the Pool Advisor for DB2 product and its major functions |
| product use | *ACTIVITY MONITOR for DB Reference Manual* | explains in detail the functions and commands for the ACTIVITY MONITOR for DB2 product |
| | Application Performance for DB2 User Guide | describes the Application Performance for DB2 solution and explains how the solution works |
| | *APPTUNE for DB2 User Guide* | explains the concepts and considerations for performing tasks in the APPTUNE for DB2 product |
| | *OPERTUNE for DB2 Reference Manual* | explains in detail the functions and commands for the OPERTUNE for DB2 product |
| | *OPERTUNE for DB2 Reference Summary* | summarizes the commands and cross- references the elements for the OPERTUNE for DB2 product |
| | *OPERTUNE for MQSeries Reference Manual* | explains in detail the functions and commands for the OPERTUNE for MQSeries product |

| Category | Document | Description |
|---|---|---|
| product use | *OPERTUNE for MQSeries Reference Summary* | summarizes the commands and cross- references the elements for the OPERTUNE for MQSeries product |
| | *Pool Advisor for DB2 User Guide* | explains the concepts and considerations for performing tasks in the Pool Advisor for DB2 product |
| | *SQL Explorer for DB2 User Guide* | explains the concepts and considerations for performing tasks in the SQL Explorer for DB2 product |
| | *SmartDBA System Performance for DB2 User Guide* | describes the SmartDBA System Performance for DB2 solution and explains how the solution works |
| supplemental | release notes, flashes, and technical bulletins | provide updates to the installation instructions, last-minute product information, and updated product information between releases |

# Online and Printed Books

The books that accompany BMC Software products are available in online and printed formats. Online books are formatted as Portable Document Format (PDF) files. Some online books are also formatted as HTML files. You can access these books by using your Internet browser.

## Access Online Books

To view any online book that BMC Software offers, visit the support page on the BMC Software Web site at **http://www.bmc.com/support_home**. You can also access PDF books from the documentation CD that accompanies your product.

Use the free Acrobat Reader from Adobe Systems to view, print, or copy PDF files. In some cases, installing the Acrobat Reader and downloading the online books is an optional part of the product-installation process. For information about downloading the free reader from the Web, go to the Adobe Systems site at **http://www.adobe.com**.

## Request Additional Printed Books

BMC Software provides printed installation-related books with your product order. To request additional books, go to **http://www.bmc.com/support_home**.

## Online Help

The OS/390 and z/OS Installer and the System and SQL Performance products include online Help. You can access Help by pressing **F1** from any ISPF panel. In graphical user interfaces (GUI), you can access Help from the **Help** menu or in either of the following ways:

- by pressing **F1** from any window or dialog box
- by clicking the Help button that is provided in most dialog boxes

## Release Notes and Other Notices

Printed release notes accompany each BMC Software product. Release notes provide current information such as

- updates to the installation instructions
- a summary of corrected problems

In addition, BMC Software sometimes provides updated product information between releases (in the form of a flash or a technical bulletin, for example). The latest versions of the release notes and other notices are available on the Web at **www.bmc.com/support_home**.

# Conventions

This book uses the following general conventions:

| Item | Example |
|---|---|
| information that you are instructed to type | Type **SEARCH DB** in the designated field. |
| specific (standard) keyboard key names | Press **Enter**. |
| field names, text on a panel | Type the appropriate value in the **Command** field. |
| directories, file names, Web addresses, e-mail addresses | The BMC Software home page is at www.bmc.com. |
| nonspecific key names, option names | Use the HELP function key.<br><br>KEEPDICTIONARY option |
| MVS calls, commands, control statements, keywords, parameters, reserved words | Use the SEARCH command to find a specific object.<br><br>The product generates the SQL TABLE statement next. |

| Item | Example |
|---|---|
| JCL examples, syntax statements, system messages, screen text | `//STEPLIB DD`<br><br>`$SUBSTR(1,10,$DOMDSN)` |
| emphasized words, new terms, variables | The instructions that you give to the software are called *commands*.<br><br>In this message, the variable *file_name* represents the file that caused the error. |
| GUI menu sequence | Choose **File => Open**. |

This book uses the following types of special text:

***NOTE***

Notes contain important information that you should consider.

***WARNING***

Warnings alert you to situations that could cause problems, such as loss of data, if you do not follow instructions carefully.

***TIP***

Tips contain useful information that may improve product performance or that may make procedures easier to follow.

Shaded text in Chapter 1 and Chapter 2 indicates information that is specific to one or more of the System and SQL Performance products.

The terms *SmartDBA System Performance* and *System Performance* are synonymous.

# Summary of Changes

The summary of changes includes enhancements to the customization procedures that prepare BMC Software System and SQL Performance products for use. It lists any major changes to the documentation that are not addressed with the listing of the functional changes.

***NOTE***

If you are using features that are shared by System and SQL Performance products for DB2, BMC Software recommends that you install maintenance for these products concurrently.

Where additions and modifications to the technical content of the documentation occur, revision bars have been inserted in the margin.

### System and SQL Performance Products Family Name

The former BMC Software Performance Activity products and Performance products designations have been changed to System and SQL Performance products for DB2. The new name better reflects the products' functionality and incorporates enhancements that have been made in this release.

The System and SQL Performance products comprise the following products:

- Application Performance for DB2 V2.1.00
- SmartDBA System Performance for DB2 V2.1.00
- ACTIVITY MONITOR for DB2 V4.1.00
- APPTUNE for DB2 V4.1.00
- MAINVIEW for DB2 – Data Collector V4.1.00
- Pool Advisor for DB2 V2.3
- SQL Explorer for DB2 V4.1.00
- OPERTUNE for DB2 V3.5.00
- OPERTUNE for MQSeries V3.5.00

*This book provides pre-installation and customization information for these products and solutions.

### New SmartDBA System Performance for DB2 Graphical User Interface

This release introduces the SmartDBA graphical user interface. This graphical interface uses the same console and DBXray interface as the other BMC Software SmartDBA products. The graphical display assists in the interpretation of data and supplements the information provided on the ISPF interface.

The solution name has been changed to SmartDBA System Performance for DB2 to reflect its addition to the SmartDBA family of products and solutions.

All components of this feature are installed on MVS and can be accessed from Windows NT, Windows XP, and Windows 2000. The SmartDBA System Performance graphical user interface uses the same data collection facilities as the common System Performance and Pool Advisor reports.

To support the graphical interface, this book contains a new chapter and a new appendix:

- Chapter 4, "SmartDBA Post-Installation Procedures" contains post-installation information about the UIM server, the application server, and the console.
- Appendix 3, "Configuring the UIM Server" describes configuration options for the UIM server.

The following sections of Chapter 1, "Preparing for Installation," have been updated with information relating to the SmartDBA graphical interface.

- "Installation Requirements" on page 32
- "System and SQL Performance Products Space Estimates" on page 36

### Updates to Installation Preparation

There have been extensive updates to Chapter 1, "Preparing for Installation." See the following sections:

- "Using SMP/E to Install the MAINVIEW for DB2 7.2.00 Component of SmartDBA System Performance for DB2" on page 40
- "Installing the System and SQL Performance Products at Different Times" on page 44
- "Upgrading from Earlier Releases of the System and SQL Performance Products for DB2" on page 50
- "DB2 Migration Considerations" on page 66
- "Migrating DB2 Objects between Releases" on page 67

### Updates to Chapter 2, "System and SQL Performance Products"

The following sections are new in Chapter 2, "System and SQL Performance Products":

- "Invoke SQL Explorer Directly" on page 89
- "Invoke BMC Software Products without LIBDEFs" on page 89

Chapter 1

# Preparing for Installation

This chapter presents the following topics:

# Overview

The System and SQL Performance products for DB2 are installed on OS/390 and z/OS by using an ISPF (Interactive System Productivity Facility) application called the OS/390 and z/OS Installer.

Before you install the System and SQL Performance products, you must gather certain information and consider how and where you plan to run the products. This chapter provides the following information to help you plan your installation:

- an overview of the OS/390 and z/OS Installer
- prerequisites for installing, configuring, and running the System and SQL Performance products
- additional information that you should consider before you install or customize any of the System and SQL Performance products

Table 1 lists the documentation that you need to complete the installation and customization tasks for the System and SQL Performance products.

**Table 1 Installation Process**

| Task | Documentation to Use |
|---|---|
| Prepare to install and customize the System and SQL Performance products. | current release notes, flashes, and technical bulletins |
| | Product Authorization Letter |
| | System and SQL Performance Products Installation Checklist (1) |
| | Chapter 1, *System and SQL Performance for DB2 Customization Guide* |
| | Chapter 1, *OS/390 and z/OS Installer Guide* |
| Unload the OS/390 and z/OS Installer and the Performance products from the distribution media. | *OS/390 and z/OS Installer Guide* |
| Set up the installation session. | *OS/390 and z/OS Installer Guide* |
| Customize the System and SQL Performance products and prepare the products for use. | Chapter 2 through Chapter 4, *System and SQL Performance for DB2 Customization Guide* |

# OS/390 and z/OS Installer

The OS/390 and z/OS Installer combines tape images, copies files to your system, and generates a set of batch jobs in job control language (JCL). You use the installation batch jobs to install (or unload) and customize products from one or more distribution media. You also use the batch jobs to apply maintenance to installed products.

See the *OS/390 and z/OS Installer Guide* for detailed instructions for using the OS/390 and z/OS Installer to install the System and SQL Performance products.

## Methods of Installation

The installation system provides the following methods for installing BMC Software products:

- Standard

  The Standard installation method provides a fast installation process by using the IEBCOPY utility.

- System Modification Program/Extended (SMP/E)

  The SMP/E installation method provides a variety of capabilities for unloading products and maintenance.

***NOTE***

The SMP/E method is not available for installing the System and SQL Performance products for DB2.

## Methods of Distribution

The System and SQL Performance products are distributed in the following manner:

- in an Electronic Software Distribution (ESD) image
- on hard media, such as a tape and CD

## Electronic Software Distribution (ESD) Image

The ESD image for the System and SQL Performance products consists of the product data sets. These data sets have been compressed into one or more sequential data sets. See the *OS/390 and z/OS Installer Guide* for instruction about downloading an ESD image.

## Tape

The tape set for the System and SQL Performance products consists of the following tapes:

- base installation (BMI) tape

  The base installation tape contains the installation system libraries and data sets. You must use this tape if you are installing products from multiple tapes in a single installation session.

***NOTE***

If you are installing products from a single product tape, you do not need to use the BMI tape.

- DB2 products tape (C-series)

  The DB2 products tape contains the code for all DB2 products (except MAINVIEW for DB2), including the following System and SQL Performance products:

  — ACTIVITY MONITOR for DB2
  — APPTUNE for DB2
  — Pool Advisor for DB2
  — SQL Explorer for DB2
  — MAINVIEW for DB2 – Data Collector
  — OPERTUNE for DB2
  — Application Performance for DB2
  — SmartDBA System Performance for DB2

  The SmartDBA System Performance for DB2 solution uses additional tapes for installation. For more information about the other tapes that are used to install SmartDBA System Performance, see the *SmartDBA System Performance for DB2 Release Notes*.

  The graphical user interface (GUI) client for the SQL Explorer product is distributed on a CD.

# System and SQL Performance Products for DB2

The following System and SQL Performance products share a common interface:

## ACTIVITY MONITOR

ACTIVITY MONITOR provides a fast, accurate means of monitoring DB2 performance to help you identify and resolve problems as they occur. ACTIVITY MONITOR provides problem detection, data collection, data analysis, and problem resolution facilities for all types of DB2 performance problems. Real-time and historical DB2 performance data can be collected manually or automatically, then analyzed by using online or batch reports. Reports, commands, and security features are provided to support the needs of the DB2 database administrator, systems programmer, and applications programmer.

## APPTUNE

APPTUNE is an application performance and resource analysis facility used to gather and display data from a single SQL statement or a set of SQL statements. The gathered data provides valuable information about the performance of and resource use by DB2 applications. APPTUNE collects all relevant performance measures in real time for every SQL statement executed in one or more DB2 subsystems. The collected data is then summarized and stored for analysis.

## Pool Advisor

Pool Advisor is a performance tuning tool for DB2 storage resources that also has automated resource management capabilities. Pool Advisor collects and analyzes DB2 data about buffer pool, group buffer pool, EDM pool, dynamic statement caching, sort pool, and RID pool usage, makes recommendations concerning storage resource allocation, object configuration, and various DB2 parameter settings, and automatically manages some of these resources on a real-time basis for best performance across workload fluctuations.

## SQL Explorer

SQL Explorer is an SQL analysis tool that you can use to proactively manage performance problems. With SQL Explorer, DBAs and application developers can quickly and easily analyze SQL statements and database structures to optimize the performance of applications, *before* the applications are put in production. SQL Explorer can also be used to identify and correct problems in production applications.

The OPERTUNE family consists of the following products:

- OPERTUNE for DB2 is a System and SQL Performance product that allows you to change DB2 system parameters dynamically
- OPERTUNE for MQSeries

Many System and SQL Performance products are also components of the System and SQL Performance solutions for DB2.

## Application Performance for DB2 Solution

Application Performance for DB2 allows DBAs, application developers, and system programmers to identify and correct performance problems in DB2 applications that run in CICS, IMS, and OS/390 environments. This solution combines the features and benefits of APPTUNE and SQL Explorer with an additional Index Component that together provide a DB2 performance tuning solution.

The Index Component automatically collects and displays the following access counts for each unique SQL statement:

- each table and index
- actual predicate usage frequencies

The collected data is summarized and stored for analysis. A "what-if" analysis lets you model changes to indexes. The Index Component provides on-demand, dynamic data collection of index dependencies and catalog statistics. New reports provide quick access to listings of the most-used tables or indexes based on getpage volume or ration, change volume or ratio, and select volume or ratio.

If you are installing Application Performance, follow all instructions in this book that apply to these products, plus any special instructions that are solution specific.

## SmartDBA System Performance for DB2 Solution

SmartDBA System Performance for DB2 lets you optimize and manage current performance while planning for future growth and capacity. This solution improves application performance by providing intelligent real-time management and tuning of DB2 system resources and parameters that can improve performance and reduce end-user response time. This solution combines the features and benefits of MAINVIEW for DB2, Pool Advisor, and OPERTUNE for DB2 to deliver your answer to efficient system performance.

The solution provides a comprehensive set of reports in addition to the reports provided by Pool Advisor and the MAINVIEW for DB2 views. A graphical interface that runs in the Windows environment is also provided that presents data in a user-friendly format.

The following products are components of the SmartDBA System Performance for DB2 solution:

- Pool Advisor for DB2
- OPERTUNE for DB2
- MAINVIEW for DB2
- CATALOG MANAGER Browse

If you are installing SmartDBA System Performance, follow all instructions in this book that apply to these products, plus any special instructions that are solution specific.

## MAINVIEW for DB2 – Data Collector

The BMC Software MAINVIEW for DB2 product now includes the Data Collector feature of the System and SQL Performance products as a selectable component. When installed, this component provides additional functionality within the MAINVIEW for DB2 environment, as well as hyperlink integration to reports in the System and SQL Performance products.

Instructions for installing and configuring MAINVIEW for DB2 can be found in the following books:

- *MAINVIEW Installation Requirements Guide*
- *MAINVIEW Common Customization Guide*
- *MAINVIEW for DB2 Customization Guide*

# Installation Summaries

This section provides summaries of the tasks that are involved to install each product in the System and SQL Performance family. If you are installing only OPERTUNE (DB2 or MQSeries), see the installation summary for OPERTUNE on page 31. If you are installing SmartDBA System Performance for DB2, all requirements for the System and SQL Performance products *and* OPERTUNE must be met.

## System and SQL Performance Products Installation Summary

This section describes installation of the System and SQL Performance products for DB2 (ACTIVITY MONITOR, APPTUNE, Pool Advisor, SQL Explorer, Application Performance, SmartDBA System Performance, and MAINVIEW for DB2 – Data Collector). Perform these tasks in the order described.

### Back Up Before You Begin

To ensure that you can revert to an older level of a product, complete the following steps to back up the current version *before* you begin installation:

1 Copy and save the current product load library by using IEBCOPY.

2 Copy and save the following data sets by using IEBCOPY:

- Pool Advisor and SmartDBA System Performance:

  DBRM, PLIB, MLIB, INSTALL, and CNTL

- ACTIVITY MONITOR, APPTUNE, SQL Explorer, and Application Performance:

  CLIST, CNTL, DBRM, LOAD, MLIB, MSGS, PLIB, SLIB, TLIB, and install JCL data sets (MSGTEXT and SCRIPT if you are using the SQL Explorer client)

3 Copy and save the following current VSAM data sets by using IDCAMS:

CUSTOM, STATUS, PROFILE, SECURITY, HELP, TEMPLATE, PARMLIB, and COPYDIR

- Pool Advisor and SmartDBA System Performance:

  PMDHIST and DCC$VARS

- SQL Explorer:

  ACVMSGS (if you are using the SQL Explorer client)

***NOTE***

To revert to an older level of a product, see "Reverting to an Older Level of a System and SQL Performance Product" on page 69.

### To Install the System and SQL Performance Products

1 Read this chapter before you proceed.

2 Remove and complete the Installation Checklist found in Appendix 1, "System and SQL Performance for DB2 Installation Checklist". Keep the checklist nearby as you proceed with installation.

3 Consult the *OS/390 and z/OS Installer Guide* for instructions about unloading the data sets and generating and submitting JCL to perform the jobs generated.

***NOTE***

If you are installing the MAINVIEW for DB2 product, follow the instructions from the Installation Checklist Generator available on the documentation CD or on the BMC Software Web site at **http://www.bmc.com/support/bmcsoftware_install**.

Table 2 outlines the OS/390 and z/OS Installer installation steps. Entries in the Full Install and SSID Installation columns identify the job names and indicate whether the members generated in the JCL data set are required or optional.

**Table 2 System and SQL Performance Products Install System Jobs (Part 1 of 2)**

| Job | Description | Full Install | SSID Install |
|---|---|---|---|
| 1 | Unload the distribution data sets to DASD. | $B05UNLD (required) | NA |
| 2 | Define or initialize the VSAM data sets. | $C10VSAM (required) | NA |
| 3 | Apply new passwords or copy previous passwords. | $C15PSWD (optional) | NA |
| 4 | Copy modules to an APF-authorized library. | $C20APF (optional) | NA |
| 5 | Create the default options load module. | $C30DOPT (required) | $C30DOPT[a] (required) |
| 6 | Bind the installation plan. | $C35BNDI (required) | $C35BNDI (required) |
| 7 | Create DB2 objects and bind the application plans. | $C40INST (required) | $C40INST (required) |

**Table 2 System and SQL Performance Products Install System Jobs (Part 2 of 2)**

| Job | Description | Full Install | SSID Install |
|---|---|---|---|
| 8 | Copies generated control members to the CNTL library. | $C45CNTL (required) | $C45CNTL (required) |
| 9 | Copy JCL generated members to the appropriate libraries where they will be used. | $C45COPY (optional) | NA |
| 10 | Loads JAPAN rule set. | $C47LDRM (optional) | $C47LDRM (optional) |
| 11 | Grant authorization to use the SQL Explorer plan. | $C60GRNT (optional) | $C60GRNT (optional) |
| 12 | Migrate data from an older release (UNLOAD). | $C65MIG (optional) | $C65MIG (optional) |
| 13 | Migrate data from an older release (LOAD). | $C66MIG (optional) | $C66MIG (optional) |
| 14 | Copy full image after migrating data. | $C67COPY (optional) | $C67COPY (optional) |
| 15 | Update the VSAM data sets from a previous release. | $C68DOM (required) | NA |
| 16 | Update the VSAM data sets from a previous release. | $C87UMOD (optional) | $C87UMOD (optional) |
| 17 | Reapply permanent zaps. | $C90PZAP | NA |
| 18 | Example of Installation Assistant CLIST EXECUTE statement. | $C97IA (required) | NA |
| 19 | Create JCL libraries for multiple SSID installs. | $S00JCL (required for multiple SSID installs) | NA |

[a]For installation of the SQL Explorer client

**4** Return to this book for instructions about performing the post-installation tasks necessary to customize the products to make them ready for use.

- Chapter 2, "System and SQL Performance Products," provides customization and post-installation information for ACTIVITY MONITOR, APPTUNE, Pool Advisor, SQL Explorer, MAINVIEW for DB2 – Data Collector, Application Performance, and SmartDBA System Performance.

- Chapter 3, "SQL Explorer for DB2 Client," provides instructions about installing, configuring, and starting the SQL Explorer client (if you are using the client).

- Chapter 4, "SmartDBA Post-Installation Procedures," provides customization and post-installation information for the components needed to run the SmartDBA graphical interface.

# OPERTUNE Installation Summary

This section summarizes the installation of OPERTUNE for DB2 and OPERTUNE for MQSeries.

If you are installing SmartDBA System Performance for DB2, you should also install OPERTUNE for DB2.

**1** Read the following topics in this chapter before you proceed.

- "OPERTUNE Installation Requirements" on page 35
- "OPERTUNE Space Estimates" on page 38
- "OPERTUNE Upgrade Considerations" on page 51

**2** Consult the *OS/390 and z/OS Installer Guide* for instructions about unloading the data sets and generating and submitting JCL to perform the jobs generated.

Table 3 outlines the OS/390 and z/OS Installer installation steps. Entries in the Full Install and Maintenance Install columns identify the job names and indicate whether the members generated in the output JCL data set are required or optional.

**Table 3 OPERTUNE Install System Jobs**

| Job | Description | Full Install | Maintenance Install |
|---|---|---|---|
| 1 | Unload the distribution data sets to DASD. | $B05UNLD (required) | $$B05UNLD (required) |
| 2 | Define or initialize the VSAM data set or copy the existing data set. | $C10VSAM (required) | NA |
| 3 | Copy previous passwords. | NA | $C15PSWD (required) |
| 4 | Copy modules to an APF-authorized library. | $C20APF (optional) | $C20APF (optional) |

**3** Return to this book for instructions about performing the post-installation tasks necessary to customize the products to make them ready for use.

Chapter 5, "OPERTUNE," provides customization and post-installation information for OPERTUNE for DB2 and OPERTUNE for MQSeries.

# Installation Requirements

To use any System and SQL Performance products, you must meet the requirements outlined in this section. If you are installing only OPERTUNE (DB2 or MQSeries), see the requirements for OPERTUNE on page 35. If you are installing SmartDBA System Performance for DB2, the requirements for the System and SQL Performance products *and* OPERTUNE must be met.

## System and SQL Performance Products Installation Requirements

To use any System and SQL Performance products, you must have the following products installed:

- one of the following operating systems:
  - — MVS/ESA version 3.1.3 and above
  - — OS/390—any release up to and including version 2.10
  - — z/OS version 1.1 and above and z/OS.e

  The SmartDBA System Performance graphical interface requires OS/390 or z/OS.

- DB2 for OS/390 (DB2 Universal Database Server (UDB) for OS/390) version 6 or later

- ACF/VTAM—any version from 4.2 through 4.8 (ACTIVITY MONITOR only)

- TSO/E—any version from 2 through 2.06.00

- IBM TCP/IP for OS/390 version 3.1 or later, if TCP/IP is used for the SQL Explorer client (SQL Explorer and Application Performance)
- IBM APPC/MVS for MVS version 4.3 or later, if APPC SNA is used for the SQL Explorer client (SQL Explorer and Application Performance)

- ISPF—any version from 3.5 through 4.8 (APPTUNE, Pool Advisor, SQL Explorer, Application Performance, and SmartDBA System Performance)

  ISPF is not required to use ACTIVITY MONITOR, but it is required to install this product, to use the Installation Assistant, and to perform EXPLAINs. If you use ISPF, you must use one of the listed versions.

- supported external sort utility (SYNCSORT version 3.7 or DF/SORT releases 12 through 1.3)

  Version numbering of this product has been changed to match the corresponding version of OS/390.

- Java Plug-in 1.4.1_02 (International version) is required for the SmartDBA console and is included with the SmartDBA System Performance solution. At installation, the Java plug-in installation files are placed on the application server host with the product files. Because the Java plug-in installation is included with the product, an outside Internet connection is not necessary to download and install the plug-in on each client.

The following special requirements apply to the System and SQL Performance products:

- The products must run from an APF-authorized load library.
- The products require a user-selected subsystem ID for each started task. These subsystem IDs must not be predefined to the operating system (for example, they should not be defined in IEFSSNxx members in parmlib and they should not be defined by the SETSSI ADD command). If you predefine the subsystem ID, an IPL might be required to upgrade to a new release or maintenance level.
- If you are using a security package such as ACF2, the System Authorization Facility (SAF) must be enabled
- If you plan to use multiple products, they must use the same level of maintenance. If any product has a lower level of maintenance than another product, you must perform the appropriate product-specific installation procedure to enable the products to work together.

***NOTE***

If multiple products are installed with different levels of maintenance, the Report Manager for one product cannot communicate with the Data Collector for the other.

- The Data Collector and the Exception Facility (ACTIVITY MONITOR only) can be run as batch jobs or as started tasks. The job or started task must have a user ID (also referred to as a LOGON ID or ACID) associated with it. If the Data Collector or the Exception Facility is run as a started task, assigning a user ID might involve system updates or security table updates.

- The dispatching priority of the Data Collector should be higher than that of the DB2MSTR and DB2DBM1 regions.

  For ACTIVITY MONITOR, the dispatching priority of the Data Collector should also be higher than that of the IRLM.

- The Report Manager uses the DYNALLOC option for SORT utility processing. If your installation parameters for the SORT utility do not allow dynamic allocation of sort work files, include sort work DD statements in the DOMCLIST and the VTAM Router started task (ACTIVITY MONITOR only). The VTAM Router requires separate sort work DD statements for each user (U001WKnn for user 1, U002WKnn for user 2, U003WKnn for user 3, and so on, where nn is the number of the sort work file). See your system sort utility documentation for more information about coding sort work DD statements.

***NOTE***

BMC Software recommends running the System and SQL Performance products in batch mode only when testing the initial installation. Stopping these products while running in batch causes the initiators in which the products are running to be terminated.

The following special requirements apply to the UIM server used by the SmartDBA graphical interface:

- Assign a TCP/IP port number. A port number is the address of a TCP/IP application on an MVS image. A TCP/IP application has one port number that clients use to contact the UIM server. The port number is typically between 8000 and 32000. For the appropriate port number for your site, contact your TCP/IP administrator.

- Select a high-level qualifier. The high-level qualifier is used to construct the name of your UIM server libraries that are downloaded from the installation tape. You cannot use the same high-level qualifier that is used for the libraries on the tape (BMC.UIM.*).

- Select a volume serial number. You need a volume serial number to install the UIM server because the files are copied from the tape to a specific DASD volume.

- If you use CA TCPaccess TCP/IP stack, ensure that the TCPaccess load library is listed before the SAS/C run-time library in the UIM server STEPLIB concatenation.

- Assign at least two new started tasks. The default started task procedure name for the UIM server is UIMx. The procedure contains the required parameter and statements for the UIM server address space. If you specify an initial installation, the installation process customizes the procedure.

- Define an OMVS (Open Multiple Virtual Storage) segment for the UIM server. The UIM server address space started task procedure name must be assigned a user ID with an OMVS segment that is defined by your security administrator. An OMVS segment is required for the UIM server started task so the BMC Software product can access Unix system services.
- The libraries that are specified in the UIM server procedure STEPLIB must be APF authorized.

## OPERTUNE Installation Requirements

Before you can install OPERTUNE, you must have the following software:

- OS/VS SP3.1.00 (MVS/ESA) or later
- DB2 version 6.1.00 or later (if using OPERTUNE for DB2)
- MQSeries 2.1.00 or later (if using OPERTUNE for MQSeries)
- TSO with ISPF version 2.1 or later
- ACF/VTAM version 2.0 or later (if using the VTAM option)

***NOTE***

You must have an entry in the AUTHPGM section of the IKJTSOxx member for the DDTTAUTH program.

# Estimated Space Requirements

During the unload process, the OS/390 and z/OS Installer allocates various data sets according to the products that you select for installation. This section describes the data sets that the installation system allocates for each product on the tape.

*HLQ* represents the high-level qualifier that you have chosen for BMC Software products. To determine your total space requirements, add up the space required for each product that you are installing.

***NOTE***

If you are using DB2-defined objects, you must have a previously-defined storage group (STOGROUP). The install system does not define STOGROUPs.

If you are installing SmartDBA System Performance for DB2, you must allow for the space requirements for both the System and SQL Performance products *and* OPERTUNE for DB2.

# System and SQL Performance Products Space Estimates

Table 4 lists the space requirements for the System and SQL Performance products distribution data sets. The products included in this space estimate include

- ACTIVITY MONITOR for DB2
- APPTUNE for DB2
- Pool Advisor for DB2
- SQL Explorer for DB2
- MAINVIEW for DB2 – Data Collector
- Application Performance for DB2
- SmartDBA System Performance for DB2

**Table 4 System and SQL Performance Products Distribution Data Sets**

| File Name | Description | LRECL | RECFM | BLKSIZE | Size | Dir Blocks |
|---|---|---|---|---|---|---|
| BMC.DOM.CLIST | CLIST library | 255 | VB | 3120 | 2 cyl | 20 |
| BMC.DOM.CNTL | JCL library | 80 | FB | 3120 | 14 cyl | 60 |
| BMC.DOM.LOAD | Load library | 0 | U | 23476 | 266 cyl | 520 |
| BMC.DOM.MLIB | Panel messages library | 80 | FB | 3120 | 2 cyl | 20 |
| BMC.DOM.PLIB | Panel library | 80 | FB | 3120 | 5 cyl | 106 |
| BMC.DOM.SLIB | Skeleton library | 80 | FB | 3120 | 2 cyl | 20 |
| BMC.DOM.TLIB | ISPF table library | 80 | FB | 3120 | 2 cyl | 20 |
| BMC.DOM.DBRM | DBRM library | 80 | FB | 3120 | 7 cyl | 214 |
| BMC.DOM.CUSTOM | CUSTOM starter library | 0 | U | 32760 | 40 cyl | NA |
| BMC.DOM.PARMLIB | Parameter library | 80 | FB | 3120 | 5 cyl | 5 |
| BMC.DOM.TEMPLATE | Template library | 80 | FB | 3120 | 3 cyl | 15 |
| BMC.DOM.STATUS | STATUS starter library | 0 | U | 32760 | 1 cyl | NA |
| BMC.DOM.HELP | HELP starter library | 0 | U | 32760 | 105 cyl | NA |
| BMC.DOM.PROFILE | PROFILE starter library | 0 | U | 32760 | 1 cyl | NA |
| BMC.DOM.SECURITY | SECURITY starter library | 0 | U | 32760 | 1 cyl | NA |
| BMC.DOM.SCRIPT | SQL Explorer client scripts | 255 | VB | 6124 | 5 cyl | 40 |
| BMC.DOM.MSGS | Messages library | 80 | FB | 3120 | 116 cyl | 38 |
| BMC.DOM.MSGTEXT | Message text for ACVMSGS | 255 | VB | 27998 | 2 cyl | 20 |
| RULES | Japanese Explain rules set | 351 | FB | 27729 | 1 cyl | 20 |
| CONFIG* | UIM, Console, product parms | 80 | FB | 3120 | 4 cyl | 40 |
| CONTENT* | Client code | 256 | VB | 27998 | 99 cyl | 40 |
| UIM.LOAD* | UIM server | 0 | V | 23476 | 40 cyl | 100 |
| * These files are used by the SmartDBA System Performance graphical interface. | | | | | | |

Table 5 lists the data sets that are created during product installation.

**Table 5 Data Sets Created during Installation Process**

| File Name | Description | Size |
|---|---|---|
| BMC.DOM.*dcssid*.DCC$VARS | VSAM parameter variables (Pool Advisor and SmartDBA System Performance) | 1 cyl |
| BMC.DOM.*dcssid*.PMD$HIST | VSAM Pool Advisor history records (Pool Advisor and SmartDBA System Performance) | 50 cyl |
| CUSTOM | VSAM CUSTOM library | 50 cyl |
| STATUS | VSAM STATUS library | 5 cyl |
| HELP | VSAM HELP library | 115 cyl |
| PROFILE | VSAM PROFILE library | 6 cyl |
| SECURITY | VSAM SECURITY library | 6 cyl |
| COPYDIR | VSAM data set for storage of information about archived trace data sets (ACTIVITY MONITOR, APPTUNE, and Application Performance) | 6 cyl[a] |
| DATA and RBAT | VSAM trace data sets | [b] |
| ACVMSGS | VSAM SQL Explorer client file | 1 cyl |

[a]The required amount of space depends on the DOMBCOPY activity at your site.

[b]The required amount of space for the storage of trace data varies considerably from site to site. It depends on the number and size of the trace data sets that are created by the Installation Assistant according to your specifications during installation.

Table 6 provides space estimates for Explain objects that are used by SQL Explorer, APPTUNE, ACTIVITY MONITOR, MAINVIEW for DB2 – Data Collector, and Application Performance.

**Table 6 Space Estimates for System and SQL Performance Products Explain Objects**

| Object (Default) | Object Number | Primary Quantity (KB) | Secondary Quantity (KB) | Estimated Tracks |
|---|---|---|---|---|
| table space | 5 | 7200 | 72000 | 150 |
| index space | 8 | 11520 | 115200 | 240 |

## OPERTUNE Space Estimates

Table 7 lists the space requirements for the OPERTUNE distribution data sets.

**Table 7 OPERTUNE Distribution Data Sets**

| File Name | Description | LRECL | RECFM | BLKSIZE | Size | Dir Blocks |
|---|---|---|---|---|---|---|
| *HLQ*.CLIST | OPERTUNE CLIST library | 80 | FB | 3120 | 1 cyl | 5 |
| *HLQ*.CNTL | OPERTUNE JCL library | 80 | FB | 3120 | 1 cyl | 10 |
| *HLQ*.SAMP | OPERTUNE sample library | 80 | FB | 3120 | 1 cyl | 5 |
| *HLQ*.LOAD | OPERTUNE load library | 0 | U | 6144 | 15 cyl | 40 |
| *HLQ*.PLIB | OPERTUNE panel library | 80 | FB | 3120 | 10 cyl | 250 |
| *HLQ*.MLIB | OPERTUNE message library | 80 | FB | 3120 | 1 cyl | 10 |
| *HLQ*.TLIB | OPERTUNE table library | 80 | FB | 3120 | 1 cyl | 10 |

# Installation Considerations

This section provides special information that you should consider before installing the System and SQL Performance products for DB2.

## Installing SmartDBA System Performance for DB2 (Version 2.1.00 or Later)

This topic applies only to SmartDBA System Performance for DB2.

To install all of the components of the SmartDBA System Performance solution at one time, select the following items on the Install System Product and Solution Selection panel of the OS/390 and z/OS Installer:

- MAINVIEW for DB2
- SmartDBA System Performance for DB2 Solution*
  - CATALOG MANAGER for DB2 Browse†**
  - MAINVIEW for DB2 – Data Collector†
  - OPERTUNE for DB2
  - Pool Advisor for DB2

* You must select the item for the SmartDBA System Performance for DB2 Solution and select the individual components from the list.

† Although CATALOG MANAGER for DB2 Browse and MAINVIEW for DB2 – Data Collector are components of MAINVIEW for DB2, you should select them at the same time that you install the OPERTUNE and Pool Advisor components, since they share libraries.

** If you own the full CATALOG MANAGER product, you can use your installed version or choose the separate product entry for CATALOG MANAGER for DB2.

The following products have new releases coinciding with version 2.1.00 of SmartDBA System Performance. To have access to the full function of SmartDBA System Performance v2.1, these components must be running the most current releases:

- MAINVIEW for DB2 Component
- OPERTUNE for DB2 Component
- Pool Advisor for DB2 Component

The MAINVIEW for DB2 component (consisting of the base product functions) is installed and maintained with SMP/E. When selected as part of the solution, MAINVIEW for DB2 is downloaded into separate libraries from the other components, and an additional step downloads the SMP/E zones needed to apply maintenance at a later time.

If you already have MAINVIEW for DB2 or other MAINVIEW products installed, you have the following choices:

- to install all of your MAINVIEW products either at the same time you install SmartDBA System Performance or separately using a Standard installation

- to upgrade to MAINVIEW for DB2 with an SMP/E installation from a separate set of SMP tapes or by an ESD download

The other SmartDBA System Performance components cannot be selected for the SMP/E installation. If you plan an SMP upgrade, you must also upgrade to MVI 4.1, if necessary.

# Using SMP/E to Install the MAINVIEW for DB2 7.2.00 Component of SmartDBA System Performance for DB2

This topic applies only to SmartDBA System Performance for DB2V2.0.00 and above.

The SmartDBA System Performance for DB2 2.0.00 solution combines components that cannot be installed with or supported by SMP/E (OPERTUNE for DB2, Pool Advisor for DB2, and CATALOG MANAGER Browse) with the MAINVIEW for DB2 component, which can be installed with and supported by SMP/E. For this reason, BMC Software recommends installing the solution using the Standard method, which supports all SmartDBA System Performance for DB2 components.

If you prefer to install the MAINVIEW for DB2 component with SMP/E, and install the other components using the Standard method, follow these instructions.

## Installing from Tape

When an SMP/E order is placed, both Standard tapes (C-series) and MAINVIEW SMP/E tapes (M-series) are included in your product shipment.

1. Use the M-series tape(s) to install MAINVIEW for DB2 with SMP/E.

2. Perform MAINVIEW AutoCustomization. Reply **YES** in the new steps that specify the integration information. Specify dummy names for the MVDB2/DC library and CATALOG MANAGER data set HLQ parameters (which are not yet established), and specify default values for any other items.

3. Use the C-series tape(s) to perform a Standard installation of the non-SMP/E components:

   - CATALOG MANAGER for DB2 (Browse only)
   - MAINVIEW for DB2 – Data Collector
   - OPERTUNE for DB2 component
   - Pool Advisor for DB2 component

   This installation should be performed as a new install run with a new OZI profile, so that a complete record of the two installations is available for future reference.

4. Perform the OZI customization steps for the selected components.

5. Perform manual customization updates to some of the MAINVIEW for DB2 members to specify the values that you did not have during AutoCustomization. If you have already entered the correct values, manual customization is not necessary. These updates are described in "Customization Instructions" on page 41.

## Installing from Electronic Software Distribution

As an alternative, you can use Electronic Software Distribution (ESD) to download the required product libraries directly, instead of placing an order and waiting for a shipment. Using ESD, perform the steps in "Installing from Tape" with the following exceptions:

In Step 1, instead of using tapes, select **Electronic** and **SMP/E** on the Select Distribution and Installation Methods panel. Then select **MAINVIEW for DB2** and **MAINVIEW Infrastructure** to begin the process of downloading the libraries.

In Step 3, instead of using tapes, select **Electronic** and **Standard** on the Select Distribution and Installation Methods panel. Then select SmartDBA System Performance for DB2 Solution and all of the non-SMP/E components:

- CATALOG MANAGER for DB2 (Browse only)
- MAINVIEW for DB2 – Data Collector
- OPERTUNE for DB2 component
- Pool Advisor for DB2 component

***NOTE***

Do not select the MAINVIEW for DB2 component or MAINVIEW Infrastructure. They have already been installed with SMP/E.

## Customization Instructions

Perform the following manual customization steps to activate the MAINVIEW for DB2 – Data Collector and CATALOG MANAGER Browse components:

### Activating the MAINVIEW for DB2 – Data Collector Component

1. In the customized sample library (UBBSAMP), edit the BBI-SS Started Task JCL (original source in member SSJCL in BBSAMP). Specify the correct data set name for the Data Collector LOAD library in the STEPLIB concatenation.

2. In BBCLIB, edit member DOMC that provides the hyperlinks to the Report Manager products running in the Data Collector (original source in member DOMC in BBSAMP). In the parameter *HLQ*('xxx'), specify the correct high-level qualifier of the Data Collector data sets.

3. Ensure that the MAINVIEW for DB2 password member is copied into the Data Collector LOAD library if it was not specified during OZI customization.

### Activating the CATALOG MANAGER Browse Component

1 In BBCLIB, edit member DMRACT that provides the hyperlinks to CATALOG MANAGER (original source in member DMRACT in BBSAMP). In the parameter HLQ('xxx'), specify the correct high-level qualifier of the CATALOG MANAGER data sets. Review the default values for the following items:

- parameter REL(7201), which is the CATALOG MANAGER release number
- parameter DOPTS(ACTDOPD1), which is the CATALOG MANAGER options module name

In most cases, these defaults are valid.

2 In UBBPARM, edit member DMRACTR (original source in member DMRACTR in BBPARM). Specify the CATALOG MANAGER release number in the first four characters of the only line. (For example, the current release number is specified as 7201.)

***NOTE***

No password is required in the CATALOG MANAGER load library for browse access from MAINVIEW for DB2.

# System and SQL Performance Products Installation Default Values

Installation default values do not apply to Pool Advisor or SmartDBA System Performance for DB2.

During installation, you can specify names for synonym qualifiers, database names, creator names, and collection names. The default values for these names are listed in Table 8. In these default values, v indicates the version, *r* indicates the release, and *m* indicates the maintenance level. The default value for the default options module is created for the server component of SQL Explorer.

**Table 8 Installation Default Values**

| Installation Default | Value |
|---|---|
| Database Name | BMCDAA*vr* |
| Synonym Qualifier | DAA*vrm*D |
| Creator Name | BMCDAA*vr* |
| Plan Name | DAA*vrm*D1 |
| Collection Name | DAA*vrm*_D_MAIN |
| SQL Explorer Default Options Module | PSSDOPD1 |

# MAINVIEW for DB2 – Data Collector and SmartDBA System Performance Password Considerations

This topic applies only to MAINVIEW for DB2 – Data Collector and SmartDBA System Performance.

f you are installing the SmartDBA System Performance solution or MAINVIEW for DB2 with its Data Collector component, you must apply the solution password (SPD) or the product password (BDS) in both of the following locations:

- BMCPSWD data set
- *HLQ*.LOAD load library

# Installing the System and SQL Performance Products at Different Times

This section discusses installation considerations for the System and SQL Performance products. The Summary of Changes in the individual products' and solutions' user guides or reference manuals and online help outline the major differences between versions.

***NOTE***

Both the previously-installed products and the products that you are installing must be at the same release level. They must also be the latest product versions.

If your previously-installed products are at earlier versions, you must upgrade them when you install the new products. For a list of the version numbers for the products in this release, see the Summary of Changes in this book.

## SYSTEM-Owned Reports (APPTUNE and Application Performance)

If you have any SYSTEM-owned reports that you created or imported under the direction of BMC Software Customer Support to address problems with the reports, it is no longer necessary to delete these reports when upgrading from one release of APPTUNE or Application Performance to another. Deletion of obsolete reports is handled programmatically.

## Customized Reports (ACTIVITY MONITOR only)

The reports shipped in the ACTIVITY MONITOR Report Set have a customized owner of BMCSftwr. Reports owned by BMCSftwr cannot be modified, but they can be copied by using the owner SYSTEM, a user ID, or an invented owner name. By default, when a report is viewed, ACTIVITY MONITOR searches for a report with the specified name and an owner that matches the user ID of the requester. If none is found, ACTIVITY MONITOR searches for the report with the owner SYSTEM. If none is found, the BMCSftwr-owned version is activated.

BMCSftwr-owned reports are modified from time to time to add new data or to enhance the layout of data. When you install maintenance, the BMCSftwr-owned reports are replaced by the new versions for the current release. Reports with any other owner are moved to the new version without changes. If you are using the default viewing order and you have customized reports with the same names as those owned by BMCSftwr, your copies of reports will be activated when you make a viewing request, and you will not see the changes that have been made to the BMCSftwr-owned reports.

To ensure that you have access to the most current version of ACTIVITY MONITOR reports, you can take one of the following actions:

- Name your reports differently from the BMCSftwr-owned reports when you copy them.
- Rename customized reports when you apply maintenance and examine the BMCSftwr-owned reports for changes.
- Change the default viewing order in User Options or the User Profile to activate BMCSftwr-owned reports first until you can evaluate the differences and modify or discard your customized reports accordingly.

## Adding Application Performance to ACTIVITY MONITOR, SQL Explorer, or APPTUNE

If you are installing Application Performance and you already have ACTIVITY MONITOR, SQL Explorer, or APPTUNE installed, follow these instructions. *Do not run the Installation Assistant.*

1 Apply the Application Performance password. For instructions, see the *OS/390 and z/OS Installer Guide*.

2 Specify DOMPLEX Profile information for the Index Component.

Verify the following options for each of the DB2 subsystems. For information about verifying DOMPLEX Profile options, see "Check or Modify the DB2 Subsystems to Monitor" on page 98.

A On the Data Collection Options panel (DOMESPQ1), check that **Y** is specified for **Object data**.

B Press **F3** to return to the Collection Controls panel.

C On the Collection Controls panel, select option **2**, **Optional collection keys**.

D On the Collection Key Options panel (DOMESPQ2), specify **Y** for **Collect data for each unique dynamic stmt**.

3 Specify output group information for the Index Component.

For information about specifying output group options, see "Check or Modify the Output Groups" on page 105.

**A** From the Collection Key Options panel, press **F3** four times to return to the DOMPLEX Profile panel.

**B** On the DOMPLEX Profile panel, select option **3**, **Output Group List**.

**C** On the Output Group Data Classes panel (DOMESP32), select the APINDEX and APBIND data classes.

**D** Recycle the Data Collector.

## Adding SQL Explorer to ACTIVITY MONITOR or APPTUNE

If you are installing SQL Explorer and you already have ACTIVITY MONITOR or APPTUNE installed, you only need to apply the SQL Explorer password. See the *OS/390 and z/OS Installer Guide* for instructions.

If you also want to enable the SQL Explorer client, see Chapter 3, "SQL Explorer for DB2 Client."

***NOTE***

*Do not run the Installation Assistant*. You must recycle the Data Collector after applying the password.

## Adding SQL Explorer, APPTUNE, or Application Performance to Pool Advisor

If you are installing SQL Explorer, APPTUNE, or Application Performance and the only other System and SQL Performance product that is installed at your site is Pool Advisor, follow these instructions:

1 Invoke the installation dialog. Use the same data-set naming convention that is used by Pool Advisor.

2 Run the Installer. You will not need to submit all of the jobs that are generated. Submit the following jobs, if appropriate:

- $C15PSWD copies passwords from one data set to another. Submit this job if it is generated; otherwise, see the *OS/390 and z/OS Installer Guide* for instructions about applying passwords.

- $C10VSAM creates the VSAM data sets needed by the Data Collector and the SQL Explorer client. Because Pool Advisor is already installed, you do not need to create the Data Collector VSAM data sets. If you intend to run the SQL Explorer client, run the following steps; otherwise, skip this job.

  — CRTVSM
  — LOADVSM

- $C30DOPT contains the assembly and link for the DOMDMDSN options module used by the Data Collector and the DOPTS module used by the SQL Explorer client. Because Pool Advisor is already installed, DOMDMDSN is already assembled and linked. Run only the PSSDOPT step if you intend to use the SQL Explorer client; otherwise, skip this job.

- $C35BNDI binds the installation plan (required).

- $C40INST creates the objects and binds the plan and packages (required).

- $C45CNTL copies generated control members to the CNTL library.

- $C45COPY copies JCL generated members to the appropriate libraries where they will be used (required).

- $C47LDRU loads the Japanese rule set (optional).

- $C60GRNT grants authorization to use the product plan (required if generated). This job is generated only if you specified additional AUTHIDs to be granted access.

- $C87UMOD contains comments to help you determine which method to implement for Extended Explain processing.

**3** Specify the plan name for the DB2s in the DOMPLEX Profile.

Start a product session, and go to the DB2 definition in the DOMPLEX Profile for each DB2 listed. Specify the plan name in the **Dynamic EXPLAIN plan name** field. Use the plan name that you specified in the Installer (DAA*vrm*D1 is the default).

**4** (Application Performance only) Specify DOMPLEX Profile information for the Index Component.

Verify the following options for each of the DB2 subsystems. For information about verifying DOMPLEX Profile options, see "Check or Modify the DB2 Subsystems to Monitor" on page 98.

**A** On the Data Collection Options panel (DOMESPQ1), check that **Y** is specified for **Object data**.

**B** Press **F3** to return to the Collection Controls panel.

**C** On the Collection Controls panel, select option **2**, **Optional collection keys**.

**D** On the Collection Key Options panel (DOMESPQ2), specify **Y** for **Collect data for each unique dynamic stmt**.

**5** Specify output group information for the Index Component.

For information about specifying output group options, see "Check or Modify the Output Groups" on page 105.

**A** From the Collection Key Options panel, press **F3** four times to return to the DOMPLEX Profile panel.

**B** On the DOMPLEX Profile panel, select option **3**, **Output Group List**.

**C** On the Output Group Data Classes panel (DOMESP32), select the APINDEX and APBIND data classes.

**6** Recycle the Data Collector.

## Adding ACTIVITY MONITOR or APPTUNE to SQL Explorer

If you are installing ACTIVITY MONITOR or APPTUNE for the first time and you already have SQL Explorer installed, follow these steps:

**1** Apply the ACTIVITY MONITOR or APPTUNE password. For instructions, see the *OS/390 and z/OS Installer Guide*.

**2** Run the Installation Assistant to create or modify the DOMPLEX Profile and allocate the trace data sets that will be used to store trace data generated by the products. For instructions, see "Run the Installation Assistant" on page 74.

**3** Recycle the Data Collector.

### Adding Pool Advisor or the Pool Advisor Component of SmartDBA System Performance to Application Performance, ACTIVITY MONITOR, APPTUNE, or SQL Explorer

If you are installing Pool Advisor or the Pool Advisor component of SmartDBA System Performance for the first time and Application Performance, ACTIVITY MONITOR, APPTUNE, or SQL Explorer is already installed, you do not need to run the Installation Assistant if you want to retain your existing DOMPLEX configuration and trace data sets. If you do not run the Installation Assistant, you must follow these steps:

1. Apply the Pool Advisor or SmartDBA System Performance password. For instructions, see "MAINVIEW for DB2 – Data Collector and SmartDBA System Performance Password Considerations" on page 43 and the *OS/390 and z/OS Installer Guide*.

2. Create the following VSAM repository files:

   - *bmc-hlq.dc-ssid* . DCC$VARS
   - *bmc-hlq.dc-ssid* . PMD$HIST

   Create a set of these files for each Data Collector that will run Pool Advisor or SmartDBA System Performance. The JCL for creating these files and updating the STATUS data set can be found in the PMDJINST and PMDHIST members of the CNTL data set.

3. Add the PAHIST data class.

   For instructions, see "Check or Modify the Output Groups" on page 105.

4. Recycle the Data Collector.

# Upgrading from Earlier Releases of the System and SQL Performance Products for DB2

This section discusses upgrade considerations for the System and SQL Performance products. The Summary of Changes in the product and solution user guides and reference manuals and online Help outline the major differences between versions.

## Upgrading to Pool Advisor Version 1.3.00 or Later

A new Pool Advisor data class (PAHIST) has been added to the data classes available in the output group definition in the DOMPLEX Profile in version 1.3. This data class supports a new set of historical reports that allows reporting of all data in the trace data sets. You must modify your existing output group to add this data class or create a new output group containing this data class before you can collect the records needed to use these reports.

Even if your existing Data Class specification uses an asterisk (*) to specify *all* data classes, you must open the output group definition in Modify mode and then save the definition before Pool Advisor will pick up the new data class. It is not necessary to actually make a change to the output group, just to open it in Modify mode and save it. Recycle the Data Collector to implement the change.

## Upgrading from Version 2.7.00 (or Later) of ACTIVITY MONITOR or APPTUNE or from Version 1.1.00 (or Later) of Pool Advisor

The first time you upgrade to version 2.7.00 or a later release of ACTIVITY MONITOR or APPTUNE, you must run the Installation Assistant to create a DOMPLEX Profile and trace data sets. When you upgrade from version 2.7.00 or a later release, you do not need to run the Installation Assistant if you want to retain your existing DOMPLEX configuration and trace data sets.

The first time you install Pool Advisor, you must use the Installation Assistant to create a DOMPLEX Profile and trace data sets. When you upgrade from version 1.1.00 or a later release, you do not need to run the Installation Assistant if you want to retain your existing DOMPLEX configuration and trace data sets.

If you do not run the Installation Assistant, you must take the following steps after you generate the installation JCL:

1. Replace the started task JCL and execution CLIST to reflect the new load library name. You must stop the Data Collector before you make these changes.

2. Retain the existing Data Collector subsystem ID. Your existing Data Collector cannot be active when you start the new Data Collector.

**3** ACTIVITY MONITOR, APPTUNE, SQL Explorer, and Application Performance:

Ensure that the plan name in the DB2 Definition in the DOMPLEX Profile matches the plan that is bound in job $C40INST. The default is DAA*vrm*D1 (where *vrm* is the version, release, and maintenance level).

**4** APPTUNE and Application Performance:

When you upgrade to a new version of DB2, you must copy the DSNTIAR and DSNTIA1 utilities to your load library. The JCL to accomplish this without using the Installation Assistant is located in the DOMTIARC member of the control data set. DSNTIAR and DSNTIA1 are used to interpret SQLCA error and reason codes. If you do not have the latest version of the utilities, you will not see the latest information about these error and reason codes.

***NOTE***

This step is not necessary if the DSNTIAR and DSNTIA1 utilities are in the linklist.

**5** Pool Advisor and SmartDBA System Performance:

Keep the existing DCC$VARS and PMD$HIST repository files.

# OPERTUNE Upgrade Considerations

Table 9 summarizes the environmental issues you need to consider when installing multiple OPERTUNE systems or applying a maintenance upgrade to your OPERTUNE systems.

**Table 9 OPERTUNE Environmental Considerations**

| Component | Environmental Considerations |
|---|---|
| Profile data set | one per MVS, may be shared in a multiple-CPU, multiple-JES, shared-DASD environment |
| PROC/started task | one per MVS or multiple-CPU, shared-DASD environment for each maintenance level of OPERTUNE |
| CLIST | one per MVS or multiple-CPU, shared-DASD environment for each maintenance level of OPERTUNE |

***NOTE***

If DB2 or MQSeries is upgraded (to a supported release), OPERTUNE requires no changes.

# Controlling Access to the System and SQL Performance Products for DB2

This section outlines the security mechanisms for controlling access to System and SQL Performance products components and to DB2. If you are installing only OPERTUNE (for DB2 or MQSeries), this section does not apply to you.

## Plan Name

One plan is provided with the System and SQL Performance products. This plan is used by ACTIVITY MONITOR, APPTUNE, SQL Explorer, MAINVIEW for DB2 – Data Collector, Application Performance, and SmartDBA System Performance. Pool Advisor does not use a plan. You can control access to the SQL Explorer product by controlling the authorization that is granted to this plan.

The default plan name is DAA*vrm*D1, where *vrm* is the version, release, and maintenance level. This plan is used to perform all SQL Explorer product functions, and for Explains in ACTIVITY MONITOR, APPTUNE, MAINVIEW for DB2 – Data Collector, and Application Performance, and for collecting table and index statistics from the DB2 catalog for Application Performance.

# MVS Security

If you have an MVS security system, you must grant the required authorizations, even if your security system does not control access to DB2. If you have no MVS security system, see "DB2/Product Security" on page 62.

## VSAM Data Sets

During installation, VSAM data sets are created. The function of each data set is described in the following table. For optimum performance, global access should be granted for each of the following data sets if you are using RACF:

| Data Set | Description |
|---|---|
| PROFILE | Stores the User Profile user records for all product users. The user record contains the parameters for session characteristics and function keys. The exception definition lists (ACTIVITY MONITOR only) are also stored in this data set. |
| SECURITY | Stores the User Profile security records. The security records contain parameters that grant or deny access to various product functions and to DB2. |
| STATUS | Stores the DOMPLEX Profile records for all Data Collector subsystems, the VTAM Router Profiles for all VTAM Routers defined (ACTIVITY MONITOR only), and APPTUNE filter profiles (APPTUNE and Application Performance only). |
| CUSTOM | Stores the definitions for all reports, report menus, lists, and APPTUNE application groups. |
| HELP | Stores the online Help text associated with the products and their components. |
| COPYDIR | Stores the names of the archived trace data sets for use by the archive directory (ACTIVITY MONITOR, APPTUNE, and Application Performance). |
| Trace | Stores trace records gathered from DB2 and BMC Software products. |
| DCC$VARS | Stores parameter variable values (Pool Advisor and SmartDBA System Performance only) |
| PMD$HIST | Stores history records (Pool Advisor and SmartDBA System Performance only) |
| ACVMSGS | VSAM SQL Explorer client file (SQL Explorer only) |

## Report Log Data Sets (ACTIVITY MONITOR, APPTUNE, and Application Performance)

Report log data sets are not allocated during the installation process. They are allocated by users to store report and screen images for later viewing and printing. See the *ACTIVITY MONITOR for DB2 Reference Manual* or the online Help for information about report logging (HELP TRPTLOG).

## PARMLIB and TEMPLATE Data Sets

***NOTE***

Although these files are currently used only by Pool Advisor, they must be present to use any of the System and SQL Performance products.

The PARMLIB data set contains the following information:

- parameters that determine the changes that should be made to the size of storage resources and the maximum and minimum threshold values that will be used when advisors recommend changes
- rules that Pool Advisor uses to trigger recommendations for changes to parameters

The TEMPLATE data set contains the advisor text that is displayed in Pool Advisor.

## HISTORY (PMD$HIST) and VARIABLES (DCC$VARS) Repositories

***NOTE***

These files are used only by Pool Advisor and SmartDB2 System Performance.

The HISTORY repository contains Pool Advisor long term history information—daily, page sets, and objects

The VARIBLES repository contains the following information:

- default values for various Pool Advisor/System Performance variables found in the member PMDINIT0 of the PARMLIB data set.
- user-coded overrides to variable values

## Data Set Users

The following classes of users need authority to access the data sets created during installation:

- Data Collector
- installer
- product administrator
- product users
- Exception Facility (ACTIVITY MONITOR only)
- DOMBCOPY job
- VTAM Router (ACTIVITY MONITOR only)

  Security requirements for the ACTIVITY MONITOR VTAM Router are described in "Install the VTAM Router" on page 121.

Authority requirements for the remaining users are described in Table 10 and Table 11 on page 56. Consult with your security administrator as needed about assigning the appropriate authorizations.

Table 10 lists RACF access authorization to product data sets.

**Table 10 RACF Access Authorization to Product Data Sets**

| Component | PROFILE | SECURITY | STATUS | CUSTOM | HELP | REPORT LOG | TRACE | COPYDIR | HISTORY | VARIABLES | PARMLIB | TEMPLATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data Collector | U | R | U | NA | NA | NA | U | U | U<br>R[a] | U<br>R[a] | R | R |
| Exception Facility | U | R | R | R | NA | U | NA | NA | NA | NA | NA | NA |
| #DOMCOPY job | NA | NA | NA | NA | NA | NA | R | R | NA | NA | NA | NA |
| Product installer | A | A | A | A | A | A | A | A | A | A | A | A |
| Product administrator | U | U | U | U | U | U | A | U | U | U | U | R |
| All users | U | R | R | U[b] | R | U[c] | R | R | R | R | R | R |
| Users with ACTIVITY MONITOR report customization authority | U | R | R | U | U | U | R | R | NA | NA | NA | NA |
| Users of APPTUNE application profiles | U | R | R | U | R | U | R | R | NA | NA | NA | NA |

Legend:

R = READ U = UPDATE A = ALTER NA = not applicable

[a]APPTUNE and Application Performance require READ authority for the HISTORY and VARIABLES repositories.

[b]All users need UPDATE authority to the CUSTOM data set in order to share customized objects (qualifier lists, for example) with other user IDs.

[c]All users need UPDATE authority to their own report log data sets (ACTIVITY MONITOR, APPTUNE, and Application Performance). In addition, READ or UPDATE authority can be granted to allow users to view or modify report log data sets used to log reports produced through exception detection (ACTIVITY MONITOR only).

Table 11 lists ACF2 access authorization to product data sets.

**Table 11 ACF2 Access to Product Data Sets**

| Component | PROFILE | SECURITY | STATUS | CUSTOM | HELP | LOG | TRACE | COPYDIR | HISTORY | VARIABLES | PARMLIB | TEMPLATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data Collector | U | R | W | NA | NA | NA | W | W | W<br>R[a] | W<br>R[a] | R | R |
| Exception Facility | W | R | R | R | NA | W | NA | NA | NA | NA | NA | NA |
| #DOMCOPY job | NA | NA | NA | NA | NA | NA | R | W | NA | NA | NA | NA |
| Product installer | WA | WA | WA | WA | WA | WA | WA | W | WA | WA | WA | WA |
| Product administrator | W | W | W | W | W | W | WA | W | W | W | W | R |
| All users | W | R | R | W | R | W | R | R | R | R | R | R |
| Users with ACTIVITY MONITOR report customization authority | W | R | R | W | W | W | R | R | NA | NA | NA | NA |
| Users of APPTUNE application profiles | W | R | R | W | R | W | R | R | NA | NA | NA | NA |
| Legend:<br>R = READ W = WRITE A = ALLOCATE NA = not applicable | | | | | | | | | | | | |

[a]APPTUNE and Application Performance require READ authority for the HISTORY and VARIABLES repositories

## Product Components

This section describes the product components that are listed in Table 10 and Table 11.

### Data Collector

The Data Collector starts traces and gathers data. The Data Collector can be run as a batch job or as a started task, although batch mode is not recommended. You will achieve better results by running it as a started task. If you use batch mode, it should be restricted to testing the initial installation.

***NOTE***

If you plan to use more than one product in the same environment, BMC Software recommends that you use only one Data Collector for each MVS image.

The following Data Collector user IDs are assigned according to the method used to start the Data Collector:

- **Batch**
  This ID is assigned by the USER parameter of the JOB statement.

- **Started Task**
  This ID is assigned by your MVS security system, based on entries in the equivalent of the RACF ICHRIN03 table. This table contains the name of the started task procedure and the user ID that should be assigned to it. Often a user ID is associated with each started task.

***NOTE***

ACTIVITY MONITOR, APPTUNE, and Application Performance:

If DB2 security is being enforced through the **Enforce security via DB2 authorization table** option (see "Verify or Change the Global Options Settings" on page 115) and the DB2 catalog data sets are protected by a security system, UPDATE authority (or its equivalent) must be granted to the Data Collector started task because these products use the Media Manager to access SYSIBM.SYSUSERAUTH and the Media Manager requires UPDATE authority. The Data Collector does not update SYSIBM.SYSUSERAUTH.

For APPTUNE and Application Performance customers who have object collection set to **Y** and DB2 catalog data sets protected by a security system, UPDATE authority (or its equivalent) must be granted to the Data Collector started task because this product uses the Media Manager to access SYSIBM.SYSDBASE and the Media Manager requires UPDATE authority. The Data Collector does not update SYSIBM.SYSDBASE.

Sites frequently allow the security system to assign a default user ID to started tasks so that started tasks can be added without requiring an update to the equivalent of the RACF ICHRIN03 table. If this is the case at your site, grant this default started task user ID the necessary authorizations. If you do not want the products being installed to use this default user ID, you must modify the ICHRIN03 table to assign a different user ID to the Data Collector.

***NOTE***

If you make changes to the ICHRIN03 table, an IPL is required to put them into effect.

User exit DOMEXIT1 can be used to assign a user ID to the Data Collector when no default user ID is assigned by your security system. This exit runs as an APF-authorized program within the Data Collector and is invoked during Data Collector initialization. For more details about DOMEXIT1, see the documentation for the product you are installing.

Console message IEF693I **Procedure <***procname***> is assigned to User <***userid***>**, is issued at Data Collector startup and reports the user ID being used by the Data Collector. You can also issue the USERS command to determine which user ID the Data Collector is using.

If you use ACF2, Top Secret, or RACF to control access to DB2, the following considerations apply:

- **ACF2**
  If you are using ACF2 to control user access to DB2, you must assign a unique LOGON ID to the Data Collector. The LOGON ID definition must specify the STC option, indicating that the ID is for use by a started task. You must also enable SAF so that ACF2 can recognize the RACROUTE calls that are issued by the product.

  ACF2 can use a TSO command-limiting function to restrict an individual user or an entire site. This function applies to TSO commands that are issued from the READY prompt or from ISPF. If command limiting is active, you must specify the following modules:

  — DOMDMAIN
  — DMDQIED2
  — PSSSQLX (for SQL Explorer)
  — PSSDCL (for SQL Explorer)

  Command limiting is activated in the following ways:

  — For an individual, with the TSOCMDS field of the logon ID record. TSOCMDS specifies the name of a module that contains a list of valid commands for a user. For a sample list, see the ACF$CMDS member of CAI.CAIMAC.

  — For an entire site, with the CMDLIST field of the GSO record named TSO. The ALLCMDS field indicates permission for a user to bypass command limiting. Use the character that is specified in the BYPASS field of the GSO TSO record as a prefix for the command name.

- **Top Secret**
  If you are using Top Secret to control user access to DB2, you must update the Facilities Matrix table to identify the program name. If the program name is not in the table, Top Secret does not allow a program to issue RACROUTE calls. You can specify the first three characters of the program name in the Facilities Matrix table. For the System and SQL Performance products, the first three characters are *DOM*. These characters then act as a wildcard (DOM*, for example), allowing any program beginning with the characters *DOM* to issue RACROUTE calls.

**VTAM Router (ACTIVITY MONITOR only)**

If you are using ACTIVITY MONITOR with a VTAM Router, you must specify the following information in the Facilities Matrix table:

```
FAC(USERXX=NAME=AMFORDB2) xx=1-77
FAC(AMFORDB2=PGM=DOM)
```

- **Grants**
  If you use ACF2 security, define the following grants to ACF2. If you use RACF or Top Secret security, define the following grants to DB2:

```
GRANT CREATETAB ON DATABASE BMCDAAvr
              TO PUBLIC;
GRANT USE OF TABLESPACE BMCDAAvr.BMCPPLAN
              TO PUBLIC;
GRANT ALL ON TABLE BMCDAAvr.Vvr_SQLX_BASE
              TO PUBLIC;
GRANT ALL ON TABLE BMCDAAvr.Vvr_SQLX_STATS
              TO PUBLIC;
GRANT ALL ON TABLE BMCDAAvr.Vvr_SQLX_SQLTXT
              TO PUBLIC;
GRANT SELECT ON TABLE BMCDAAvr.Vvr_SQLX_RULES
              TO PUBLIC;
GRANT SELECT ON TABLE BMCDAAvr.PLAN_TABLE
              TO PUBLIC;
GRANT SELECT ON TABLE BMCDAAvr.STRUCTURE_TABLE
              TO PUBLIC;
GRANT SELECT ON TABLE BMCDAAvr.PREDICATE_TABLE
              TO PUBLIC;
GRANT SELECT ON TABLE BMCDAAvr.COST_TABLE
              TO PUBLIC;
GRANT SELECT ON TABLE BMCDAAvr.DSN_STATEMNT_TABLE
              TO PUBLIC;
```

The names in this list of grants reflect the default names that are used during installation with *vr* being the version and release levels of the product. If you used different names during installation, replace these default names with your own names.

### Exception Facility (ACTIVITY MONITOR only)

The Exception Facility occupies a separate address space that monitors DB2 automatically for indications of actual or potential problems in the DB2 system. Its user ID is assigned according to the method used to start the Exception Facility:

- **Batch**
  Assigned by the USER parameter of the JOB statement.
- **Started Task**
  Assigned by your MVS security system, based on entries in the equivalent of the RACF ICHRIN03 table. This table contains the name of the started task procedure and the user ID that should be assigned to it. Often a user ID is associated with each started task.

  Sites frequently allow the security system to assign a default user ID to started tasks so that tasks can be added without requiring an update to ICHRIN03. If this is the case at your site, grant this default started task user ID the necessary authorization. If you do not want the products that are being installed to use this default user ID, you must modify ICHRIN03 to assign a different user ID to the Exception Facility.

***NOTE***

If you make changes to ICHRIN03, an IPL is required to put them into effect.

If no default user ID is assigned to started tasks by your security system, AMXCEP is used for the user ID.

BMC Software recommends that you run the Exception Facility as a started task rather than as a batch job.

**DOMBCOPY (ACTIVITY MONITOR, APPTUNE, MAINVIEW for DB2 – Data Collector, and Application Performance)**

The DOMBCOPY job copies the contents of the trace data set to a data set that can be used as input to batch reports. DOMBCOPY can be submitted automatically by the Data Collector when the following conditions occur:

- The product is stopped.
- A trace data set is full.
- The SWITCH command is issued.

If submitted by the Data Collector, the DOMBCOPY job inherits the Data Collector's user ID.

The DOMBCOPY job can also be submitted by a user as a batch job and consequently inherits the user ID of the submitter. The DOMBCOPY job requires READ authority on each trace data set.

### Product Installer

For the authority requirements of the product installer, see Table 10 on page 55 and Table 11 on page 56.

### Product Administrator

The product administrator controls internal security and determines whether users should be restricted from performing tasks such as starting traces and issuing MVS or DB2 commands.

A site can designate an individual to be the product administrator or can allow all users to perform administrative functions.

For the authority requirements of the product administrator, see Table 10 on page 55 and Table 11 on page 56.

### Product Users

The authorization required for the CUSTOM and HELP data sets depends on whether the ACTIVITY MONITOR user is allowed to customize reports and whether the APPTUNE or Application Performance user needs to use application profiles.

For the authority requirements of product users, see Table 10 on page 55 and Table 11 on page 56.

# DB2/Product Security

The product administrator is responsible for establishing default security options for all users and for maintaining individual user access options through the User Profile. The User Profile controls access to the following components and functions:

- Data Collector subsystems
- authority to issue product commands (through Data Collector subsystems)
- authority to issue DB2 commands, to start and stop traces, and to use dynamic exceptions (through DB2)
- individual menus and reports

## Security Data Set and Security Processing

Product security is enforced through the SECURITY data set. Each user is registered in this data set automatically when a User Profile is created.

Users can modify their User Profiles through User Options or product administrators can modify them in User Profile administration. Changes made to a User Profile from the administration panels result in an update of the records in the PROFILE and SECURITY data sets. When the User Options panels are used, only the record in the PROFILE data set is updated. Administrators can prevent users from modifying many of the profile values by locking the values. Users can view the values in locked fields but cannot modify them. Locked values can be changed only by users with profile administration authority.

When a user begins a product session, the profile records from the SECURITY and PROFILE data sets are merged. If a value is locked, the setting from the SECURITY record is used. If a value is not locked, the setting from the PROFILE data set is used.

## DB2 Security

Authority to start DB2 traces (ACTIVITY MONITOR, APPTUNE, and Application Performance) and issue DB2 commands can be restricted with product security alone or with DB2 security checking.

The global option called **Enforce security via DB2 authorization table** is used to specify the type of security enforcement the product uses, as follows:

- **N** use only product security (default value)
- **Y** use both DB2 security and product security

For an explanation of global options, see "Verify or Change the Global Options Settings" on page 115.

### Using Only Product Security

Authority to issue DB2 commands and to start and stop DB2 traces is controlled exclusively through the product when you specify **N** for **Enforce security via DB2 authorization table**. This option prevents validation of authorization in DB2. For example, if a User Profile indicates that DB2 commands can be issued, the product allows the user to issue DB2 commands regardless of whether the user has SYSOPR or other authority in DB2.

The DOMEXIT2 user exit allows individual security options in the User Profile to be overridden.

For more information about DOMEXIT2, see the appropriate reference manual or user guide for the product being installed. For an explanation of global options, see "Verify or Change the Global Options Settings" on page 115.

### Using Both DB2 and Product Security

If you specify **Y** for **Enforce security via DB2 authorization table**, security is enforced for both DB2 and for the product. For DB2 operations, the product validates authority in the User Profile first. DB2 authority is validated only if the product allows the operation. For example, if the User Profile indicates that the user is allowed to start traces, the product validates the user's DB2 authority. If the user does not have trace authorization in DB2, the user cannot start a trace.

On the other hand, because DB2 authorization is checked only if the operation is authorized by the product, it is possible for the product to restrict a user from starting traces, even when DB2 trace authority has been granted to the user. When **Y** is specified for the **Enforce security via DB2 authorization table** option, the product can prevent a user from performing a function that DB2 would allow because that function is not authorized by the product. When user access to a specific function is denied because of insufficient security, the product issues error messages.

The product establishes a user's DB2 authority when the user first logs on to the product. If the target DB2 subsystem is not active when the user logs on, security checking is deferred until DB2 is started and the user makes the first request for a DB2 service.

***NOTE***

If the DB2 catalog data sets are protected by a security system, ALTER authority (or its equivalent) must be granted to the Data Collector started task because the product uses the Media Manager to access SYSIBM.SYSUSERAUTH. The Data Collector does not update SYSIBM.SYSUSERAUTH.

## DB2 Authorization Requirements

The following types of users need DB2 authority:

- any product user
- users of the Exception Facility (ACTIVITY MONITOR only)

The Data Collector does not require DB2 authority.

### Product Users

If a product is implemented so it controls security (by specifying **N** for the **Enforce security via DB2 authorization table** option), all authorizations are enforced by the product's User Profile when the product is installed. See "Check the Default User Profile" on page 118 for information about defining a User Profile. Detailed information about creating User Profiles is included in the *System and SQL Performance for DB2 Administrator Guide*.

If product security and DB2 security are used (by specifying **Y** for the **Enforce security via DB2 authorization table** option), the user must be granted authorization to the appropriate functions on each DB2 subsystem. To issue DB2 commands, the user must be granted the proper DB2 authority (DISPLAYAUTH for DISPLAY commands, for example). To start and stop traces, the user must be granted SYSOPRAUTH, SYSADMAUTH, or TRACEAUTH authority.

These GRANTs must be performed before the user begins a product session with a Data Collector. The user ID that is granted authority in DB2 can be the user ID or, in the TSO environment, a secondary authorization ID within the user's security group.

The DOMEXIT4 user exit allows these default user ID selections to be overridden. This exit is invoked once at the start of each user's product session. For more information about DOMEXIT4, see the appropriate reference manual or user guide for the product you are installing.

GRANTs and REVOKEs that are issued in a DB2 subsystem are not detected by the product until DB2 updates the SYSIBM.SYSUSERAUTH catalog table. If the update is in a DB2 buffer, it might not be written immediately on low-activity DB2 subsystems. If you are using a low-activity DB2 subsystem, you can expedite this update to the catalog table by restarting the DB2 subsystem or by executing the QUIESCE utility against the DSNDB06.SYSUSER table space. If the product is executing when a GRANT or REVOKE command is issued, the Data Collector does not recognize the change until you restart the Data Collector or issue a REFRESH command from the Data Collector Command Interface panel or the console.

Authorization to perform non-DB2-related functions is enforced through the product's User Profile. For information about defining a User Profile, see "Check the Default User Profile" on page 118. Detailed information about creating User Profiles is included in the *System and SQL Performance for DB2 Administrator Guide*.

### Users of the Exception Facility (ACTIVITY MONITOR only)

The Exception Facility monitors DB2 for indications of actual or potential problems in the DB2 subsystem. The Exception Facility can be activated by the Data Collector when the product is started and can monitor exception conditions on behalf of the subsystem and individual users. When an exception condition is detected, the Exception Facility can initiate several actions, including notifying users, issuing WTOs, starting and stopping traces, and issuing product commands.

When acting on behalf of the Data Collector subsystem, the Exception Facility's user ID (AUTHID) must have the appropriate DB2 authority. For example, if the Exception Facility is to start and stop traces, its user ID must be granted SYSOPRAUTH, SYSADMAUTH, or TRACEAUTH authority.

For user-activated exceptions, the Exception Facility's user ID and the user's ID must have the appropriate DB2 authority. The Exception Facility cannot perform any function that the user is not allowed to perform. If the user does not have authority to start traces, the Exception Facility cannot start traces on behalf of the user, even if the Exception Facility has trace authorization under its own user ID.

Depending on the setting of the **Enforce security via DB2 authorization table** option, the Exception Facility validates the user's authority only in the User Profile (if **N** is specified) or in both the User Profile and in the DB2 subsystem (if **Y** is specified).

# DB2 Migration Considerations

This section applies only to SQL Explorer, APPTUNE, Application Performance, the MAINVIEW for DB2 – Data Collector component of SmartDBA System Performance, and ACTIVITY MONITOR. If you are not installing one of these products, you can ignore this section.

## Migrating between Versions of DB2

This section provides guidelines that help you to maintain the product when you migrate from DB2 version 6 to DB2 version 7.

To maintain the product when you create a new DB2 version 6 or 7 catalog, perform a full installation of the product. Then you will be operating in exploitation mode.

To maintain the product when you migrate to DB2 versions 6 or 7, or when you fall back to DB2 version 6, use the guidelines in Table 12.

**Table 12 Migrating between Versions of DB2**

| Products | Migrate Action | Fall Back Action |
|---|---|---|
| ISPF SQL Explorer, ACTIVITY MONITOR, or APPTUNE 3.3 or 3.4 and migrating to DB2 version 6 | Migrate the DB2 catalog. Then you will be operating in exploitation mode. | Rebind all packages and plans by using DAA*ssid*P (bind packages) and DAA*ssid*B (bind plans), where *ssid* is the subsystem ID. |
| ISPF SQL Explorer, ACTIVITY MONITOR, or APPTUNE 3.3. or 3.4 and migrating to DB2 version 7 | Migrate the DB2 catalog. Then you will be operating in toleration mode. | Rebind all packages and plans by using DAA*ssid*P (bind packages) and DAA*ssid*B (bind plans), where *ssid* is the subsystem ID. |
| | As an alternative, you can perform a full installation of the product. Then you will be operating in exploitation mode. | Remove the product in exploitation mode. Provided that the previous version still exists in toleration mode, rebind all packages and plans by using DAA*ssid*P (bind packages) and DAA*ssid*B (bind plans), where *ssid* is the subsystem ID. |
| ISPF SQL Explorer, ACTIVITY MONITOR, MAINVIEW for DB2 – Data Collector, or APPTUNE 4.0 or later, or Application Performance version 2.0 or later, and migrating to DB2 version 6 or 7 | Migrate the DB2 catalog. Then you will be operating in exploitation mode. | Rebind all packages and plans by using DAA*ssid*P (bind packages) and DAA*ssid*B (bind plans), where *ssid* is the subsystem ID. |
| SQL Explorer client, server 7.1.01 or later with ISPF 3.3 or later and migrating to DB2 version 6 or 7 | Migrate the DB2 catalog. Edit the PSSUPGV*n* job, where *n* is the new version of DB2. Run the job. Then you will be operating in exploitation mode. | Rebind all packages and plans by using DAA*ssid*P (bind packages) and DAA*ssid*B (bind plans), where *ssid* is the subsystem ID. |

# Migrating DB2 Objects between Releases

When you install a new release, you can copy data from an old release to the new release, using identical DB2 object names (for example, database and table names). To use existing DB2 object names for a new release, perform the procedure in this section and see the sample job listing in Figure 1 on page 68.

***WARNING***

BMC Software recommends that you use different object names between releases to avoid replacing your current DB2 structures.

### To Use Existing DB2 Object Names for a New Release

1. When you are prompted by the Object/Storage Verification panel, select the option to migrate data.
2. Change the DB2 object names of the BMC Software product to your naming conventions.
3. After you generate the installation batch jobs, run all of the jobs that are listed before $*xnn*INST.
4. Run the first $*xnn*MIG job to unload the data from the current DB2 databases.
5. Drop the current DB2 databases for the BMC Software product, using #D98DROP from the previous install JCL.

***WARNING***

BMC Software recommends that you run the #D98DROP or #D99DLTE jobs only when you are ready to uninstall the product.

6. Resume installation with job $*xnn*BNDI (to bind the install plan just freed) until you get to the first $*xnn*MIG job.
7. Run the second $*xnn*MIG job to load the data into the new tables.
8. Run the remaining jobs, starting with $*xnn*COPY and ending with $C68DOM.

***WARNING***

BMC Software recommends that you do not run the Installation Assistant that is referenced in $C97IA when migrating objects.

9 Review the comments in the $C87UMOD to determine which method to implement for Extended Explain processing.

10 Update the plan name through Administration. For instructions, see "Check or Modify the DB2 Subsystems to Monitor" on page 98.

11 Update the DOMPROC (started task) to reference the new data set names. Use member DOMPROC in the *HLQ*.CNTL data set as a model for any DDs that might have been added.

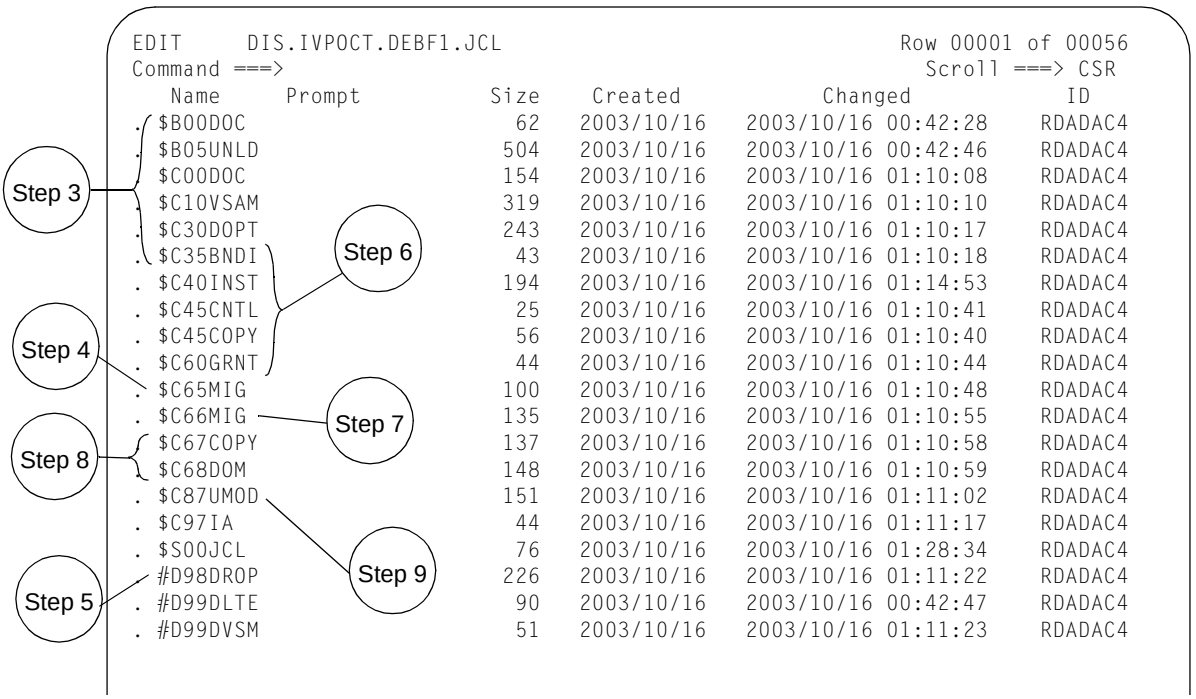
12 SQL Explorer only:

Copy the SQLX Edit Macro from your current installation to your SYSPROC concatenation, overlaying the earlier version of the SYSPROC.

13 CATALOG MANAGER to SQL Explorer integration:

Update member ACTPSS in the *HLQ*.CLIST data set from your CATALOG MANAGER installation to reference the new data sets.

**Figure 1 Sample Installation Batch Jobs**




Depending on the functionality used in a product, you may be able to create several other indexes that improve the performance of the product. See *HLQ*.CNTL(BMIDB2IX) for details about creating these indexes. You can implement the desired indexes by reading the comments in the member.

# Reverting to an Older Level of a System and SQL Performance Product

This section applies to all System and SQL Performance products *except* OPERTUNE.

At times it is necessary to cancel the installation process or to revert to an older level of a product during or after installation. To revert to an older level of a System and SQL Performance product, follow these steps:

1 Stop all Data Collector subsystems that are monitoring the same DB2 subsystems.

2 Restore the following previously saved data sets by using IEBCOPY:

- The previously saved data sets for ACTIVITY MONITOR, APPTUNE, Pool Advisor, Application Performance, and SmartDBA System Performance are LOAD, DBRM, PLIB, MLIB, PARMLIB, TEMPLATE, CNTL, and install JCL data sets.
- The previously saved data sets for SQL Explorer and Application Performance are CLIST, CNTL, DBRM, LOAD, MLIB, MSGS, PLIB, SLIB, TLIB, and install JCL data sets. If you were using the SQL Explorer client, also restore the MSGTEXT and SCRIPT data sets.

3 Restore the following previously saved VSAM data sets by using IDCAMS: CUSTOM, STATUS, PROFILE, SECURITY, and HELP (also ACVMSGS if you were using the SQL Explorer client).

4 For all System and SQL Performance products *except* Pool Advisor. If you have already dropped the objects from the previous install, recreate them and run the binds by running the $C40INST job from the install JCL.

5 Restore the trace data sets that were used with the previous version or go into the DOMPLEX Profile dialog and redefine the data sets. Also restore the DOMCLIST and the DOMPROC.

6 Check the names of the load library and the data sets that are restored in 3 in the DOMDMDSN load module. If the names in the load module do not match the names of the restored data sets, you must modify and submit the JCL in the DOM$OPTS member of the CNTL data set.

***NOTE***

Before starting the DOMPROC, contact BMC Software Customer Support about the necessity of using the REFRESH parameter.

# Where to Go from Here

When you have finished preparing for installation, see the *OS/390 and z/OS Installer Guide* for instructions about unloading the data sets and generating and submitting JCL to perform the jobs generated.

When you finish unloading the data sets and generating and submitting the JCL, return to this book for instructions for post-installation customizing and configuring tasks.

- See Chapter 2, "System and SQL Performance Products,"for post-installation tasks for all System and SQL Performance products except OPERTUNE.
- See Chapter 3, "SQL Explorer for DB2 Client,"for installation and customization instructions for the SQL Explorer for DB2 client.
- See Chapter 4, "SmartDBA Post-Installation Procedures," for post-installation tasks for the SmartDBA graphical interface.
- See Chapter 5, "OPERTUNE," for post-installation tasks for the OPERTUNE for DB2 and OPERTUNE for MQSeries products.

Chapter 2

# System and SQL Performance Products

This chapter discusses the post-installation and customization steps that are necessary to complete product installation. This chapter presents the following topics:

# Overview

The System and SQL Performance products and solutions for DB2 provide an integrated environment that allows you to use one performance product or solution alone or to use two or more products or solutions together. Using products together saves time and further automates performance analysis functions. The integrated environment from which the products operate allows all products to operate concurrently without placing unnecessary burdens on system storage, resource use, or execution time.

When multiple System and SQL Performance products or solutions are installed and active, they share a common interface. If multiple products are installed but only one product is active, the product-specific main menu for the active product is displayed instead of a common main menu. The main menu that is displayed reflects the active product mix.

Figure 2 is an example of the main menu for a single product.

**Figure 2 APPTUNE Main Menu**

```
ASQESEL1/P                    APPTUNE Main Menu                    16:55:14
Command ====> ____________________________________________________________

Current Data Collector : DOMO    Status : ACTIVE   Data Collection :  N/A

Select one of the following options.  Then press Enter.

_  1. SQL Workload         - Analyze current and historical SQL workloads
   2. DB2 Status           - View current DB2 status by subsystem
   3. Explain Interface    - Explain an SQL Statement

   4. Application Profiles - Create and maintain application groups
   5. Command Interface    - Issue commands, view responses
   6. DOMPLEXes            - Select a different DOMPLEX
   7. User Options         - View/modify user options
   8. Log Operations       - View/print logged screens and reports
   9. Administration       - Create and maintain product and user parameters

   D. Archive Directory    - View/manage the directory of archives

   H. Help                 Y. Summary of Changes
   X. Exit                 Z. About APPTUNE
  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

Figure 3 on page 73 is an example of the main menu that is displayed when all System and SQL Performance products and solutions are installed and active.

**Figure 3 System and SQL Performance for DB2 Common Main Menu**

```
DOMESELT/I            System and SQL Performance for DB2              08:12:16
Command ====>

Current Data Collector : DOMM    Status : ACTIVE

  Select one of the following options.  Then press Enter.

 _ I. Application Perf     - DB2 application, SQL and index analysis
   D. System Perf          - DB2 subsystem and storage pool analysis
   A. ACTIVITY MONITOR     - DB2 subsystem performance monitor

   1. DOMPLEXes            - Select/change DOMPLEX connection
   2. Session status       - View current session resource usage
   3. User Options         - View/modify user options
   4. Log Operations       - View/print logged screens and reports
   5. Administration       - Manage product and user profiles

   H. Help                   Y. Summary of Changes
   X. Exit


  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

***NOTE***

The MAINVIEW for DB2 – Data Collector component provides access to Administration functions of the System and SQL Performance products environment by a hyperlink from a MAINVIEW for DB2 Easy Menu. There is also a CLIST option to invoke a menu for the product. For more information, see the *MAINVIEW for DB2 User Guide, Volume 1: Views*.

All procedures and tasks in this chapter do not apply to all System and SQL Performance products. If information applies to only certain products, the text is displayed in shaded boxes to highlight the differences and the product-specific material.

***NOTE***

All instructions that apply to APPTUNE and SQL Explorer also apply to Application Performance, and all instructions that apply to Pool Advisor also apply to SmartDBA System Performance.

# Post-Installation Tasks

When you finish using the OS/390 and z/OS Installer to generate and execute installation JCL, you must also perform the following post-installation tasks to complete the installation process.

This section provides a detailed description of the post-installation tasks that are common to the System and SQL Performance products. Perform these tasks in the order they are presented. These tasks must be performed only once, even if you are installing multiple products.

Table 13 summarizes the System and SQL Performance products post-installation tasks.

**Table 13 System and SQL Performance Products Post-Installation Tasks**



## Run the Installation Assistant

For a SQL Explorer-only installation, skip this task.

The Installation Assistant component of the System and SQL Performance products is designed to help you create a DOMPLEX Profile that contains values appropriate to the conditions and workflow at your site. You are asked a series of questions and, based on your responses, the Installation Assistant performs the following tasks:

- creates the DOMPLEX Profile
- allocates the data sets that will be used to store trace data generated by the product

- creates a sample procedure for the DOMPLEX Data Collectors

- creates a sample procedure for the Exception Facility (ACTIVITY MONITOR only)

- copies the DSNTIAR and DSNTIA1 utilities (used to interpret SQL error and reason codes) to your load library (APPTUNE and Application Performance) This step is not necessary if the DSNTIAR and DSNTIA1 utilities are in the linklist. If you do not have the latest version of the utilities, you will not see the latest information about these error and reason codes.

***NOTE***

BMC Software recommends that you always use the latest version of the DSNTIAR and DSNTIA1 modules from the latest version of DB2.

Any time you upgrade to a new version of DB2, you will need to copy the DSNTIAR and DSNTIA1 utilities to your load library. The JCL to accomplish this without using the Installation Assistant is located in the DOMTIARC member of the control data set.

- creates the following VSAM repository files (Pool Advisor only)
  - *bmc-hlq.dc-ssid*.DCC$VARS
  - *bmc-hlq.dc-ssid*.PMD$HIST

When you generate and submit the installation JCL by using the OS/390 and z/OS Installer, the $C97IA member is created in the installation JCL library. This member contains instructions for invoking the Installation Assistant CLIST.

Use the Installation Assistant only if you are not migrating from an existing configuration.

***WARNING***

The IA$dcUPS job should be run only once. Do not run this job if the $C68DOM job was run as part of your installation.

To run the Installation Assistant, follow these steps:

1 Type the following command on the ISPF Command Shell panel:

```
EX 'your.prefix.JCL(IA)' 'your.repositoryHLQ.xxxxPROF'
```

- `your.prefix.JCL` is the System and SQL Performance products JCL library.
- `your.repositoryHLQ.xxxxPROF` is the repository data set where installation profile information will be stored.
- *xxxx* is the Install Repository Profile ID that was specified on the Install User Options panel.

2 Follow the prompts that are presented by the Installation Assistant. Online Help is available for all panels and the values that they contain. Press **F1** (Help) at any time for help that is associated with the current panel.

# Integrate SQL Explorer with CATALOG MANAGER

This topic applies only to SQL Explorer and Application Performance.

SQL Explorer can be launched from CATALOG MANAGER, enabling you to access and analyze SQL from CATALOG MANAGER. You can also launch the SQLX edit macro of the SQL Explorer product from CATALOG MANAGER to Explain a single SQL statement.

## Setting Up the SQLX Edit Macro

To use the SQLX edit macro, you must make some adjustments to your TSO data sets and libraries. You can make these adjustments in one of the following ways:

- Concatenate the CLIST library created during installation with your logon procedure SYSPROC DD statement.
- Copy the SQLX and PS* members from your *HLQ*.CLIST data set to a common CLIST library.

The base code for SQL Explorer is not dependent on the version of DB2. If you have several product suites of data sets for the same version of the product, you must copy only one *HLQ*.CLIST to your SYSPROC concatenation.

## Adding Subsystem Information for the SQLX Edit Macro and the ACTPSS CLIST

During the product installation, the SQLX edit macro and the ACTPSS CLIST are customized to enter information for the installation that is performed on each subsystem. SQLX and ACTPSS are then copied to your product CLIST library.

To add subsystem information from subsequent installations to SQLX and ACTPSS after installation, append the subsystem information at the top of the member following the `/* REXX` line. The format of the data is as follows:

*ssid keyword value*

where *ssid* is your subsystem identifier.

Table 14 lists the keywords that you can specify, with a description of each keyword and an example for each value.

**Table 14 Keywords for Adding Subsystem Information to SQLX and ACTPSS**

| Keyword | Description | Example |
|---|---|---|
| PLAN | SQL Explorer plan name | DAA410D1 |
| EXIT | DSNEXIT library for SSID | SYS3.DEAH.DSNEXIT |
| LOAD | DSNLOAD library for SSID | SYS2.DB2V71M.DSNLOAD |
| CNTL | Control library for SSID (*HLQ*.CNTL) | BMCPERF.CNTL |
| MLIB | Message library for SSID (*HLQ*.MLIB) | BMCPERF.MLIB |
| PLIB | Panel library for SSID (*HLQ*.PLIB) | BMCPERF.PLIB |
| SLIB | Skeleton library for SSID (*HLQ*.SLIB) | BMCPERF.SLIB |
| CLIB | CLIST library for SSID (*HLQ*.CLIST) | BMCPERF.CLIST |
| LLIB | Load library for SSID (*HLQ*.LOAD) | BMCPERF.LOAD |
| TLIB | ISPF table library for SSID (*HLQ*.TLIB) | BMCPERF.TLIB |

Figure 4 shows a complete example of this information for the SSID *DEAH*.

**Figure 4 Sample of Appended Subsystem Information for SSID DEAH**

```
/* REXX ***********************************************
DEAH PLAN DOMV410D1
DEAH EXIT SYS3.DEAH.DSNEXIT
DEAH LOAD SYS2.DB2V71M.DSNLOAD
DEAH CNTL BMCPERF.CNTL
DEAH MLIB BMCPERF.MLIB
DEAH PLIB BMCPERF.PLIB
DEAH SLIB BMCPERF.SLIB
DEAH CLIB BMCPERF.CLIST
DEAH LLIB BMCPERF.LOAD
DEAH TLIB BMCPERF.TLIB
*/
```

To append the subsystem information, begin entering data on the second line of the comments section of the SQLX edit macro or the ACTPSS CLIST (between the /* REXX line and the closing comment line */). The data can begin in any column. Enter complete information for all SSIDs that you want to access.

## Create Indexes on DB2 Catalog Tables

This topic applies to all the System and SQL Performance products *except* SmartDBA System Performance and its components.

To improve performance, BMC Software recommends that you create indexes on the following DB2 catalog tables:

- SYSIBM.SYSCOLAUTH
- SYSIBM.SYSDBRM
- SYSIBM.SYSFIELDS
- SYSIBM.SYSFOREIGNKEYS
- SYSIBM.SYSRELS
- SYSIBM.SYSSTMT
- SYSIBM.SYSSYNONYMS
- SYSIBM.SYSTABAUTH
- SYSIBM.SYSTABLES
- SYSIBM.SYSVIEWDEP

If your plan tables have many rows from performing bind with EXPLAIN(YES) operations, BMC Software recommends that you add indexes to your plan tables. The following procedures describe how to create indexes on the catalog tables, and how to create indexes on the user plan tables.

## Creating Indexes on the DB2 Catalog Tables

This task is *optional*, and applies only to SQL Explorer, APPTUNE, Application Performance, MAINVIEW for DB2 – Data Collector, ACTIVITY MONITOR, and SmartDBA System Performance.

The syntax for the CREATE statements is located in the *HLQ*.CNTL(BMIDB2IX) member.

1. Change the AUTHID from **AUTHID to a DB2 authorization ID with BIND authority on the product packages.
2. Change **OWNER to the owner of the indexes.
3. Change **STOGR to a STOGROUP name.
4. Change **PRIQTY to a primary quantity.
5. Change **SECQTY to a secondary quantity.
6. Execute the worklist as a single step in a copy of the JCL member $C40INST, which was used when the BMC products were installed.
7. Run RUNSTATS on the catalog before rebinding.
8. Rebind the packages for the BMC products to each SSID on which you want to improve performance. JCL to bind the packages is located in *HLQ*.CNTL(DAA*ssid*P), where *HLQ* is the high-level qualifier that you used during installation, and *ssid* refers to the DB2 subsystem.

***NOTE***

You can run the BMIDB2IX member on each DB2 SSID for which you want to improve performance.

## Creating Indexes on the User Plan Tables

This task is *optional*, and applies only to SQL Explorer, APPTUNE, Application Performance, MAINVIEW for DB2 – Data Collector, ACTIVITY MONITOR, and SmartDBA System Performance.

Perform this task to improve performance on Explain processes that access user plan tables that contain a large number of rows. The syntax for the CREATE statements is located in the *HLQ*.CNTL(DAADB2IX) member.

1. Change **DSNLOAD to the correct DB2 library for your subsystem.
2. Change **SSID to the correct subsystem.
3. Change **OWNER to the owner of the indexes.
4. Change **USERID to the owner of the plan tables.
5. Change **STOGR to a STOGROUP name.
6. Change **PRIQTY to a primary quantity.
7. Change **SECQTY to a secondary quantity.
8. Submit the job.
9. Run RUNSTATS on the user plan tables.

# Generate Help Text from DB2 Trace Record Field Descriptions

This task is *optional* and does not apply to SQL Explorer.

This job generates help text from DB2 trace record field descriptions, which are located in the DSNWMSGS member of the DB2 DSNSAMP data set. Run this job if you want to be able to retrieve DB2 field descriptions from DSNWMSGS while using the product. An example of a field and its description is: QBSTGET (Number of getpages).

To generate help text from DSNWMSGS, modify and submit the JCL provided in the DOMHELP member of the CNTL library. The Data Collector cannot be active while this job is running.

The help job performs the following tasks:

- converts DSNWMSGS macro text to loadable help text records
- copies the loadable help text records to the HELP data set
- reorganizes the HELP data set

For information about using the online Help facility, see the reference manual or user guide for the products that you are installing.

## Edit or Review the JCL Procedures

This task is required.

To edit or review the JCL procedures for the Data Collector (all products) and the Exception Facility (ACTIVITY MONITOR only), follow these steps:

1 Edit or review the Data Collector procedure (all products).

JCL for the Data Collector procedure (PROC) is customized by the Installation Assistant into the DOM*ssid* member of the JCL library (DOMDC01, for example).

***NOTE***

If you are migrating from a previous release and did not use the Installation Assistant, you can find a copy of the Data Collector procedure in the DOMPROC member of the CNTL data set.

The Data Collector runs as an MVS subsystem. You can start this subsystem in one of the following ways:

- issue the MVS START command from an operator console for the product PROC
- invoke the product PROC from a batch job

When the product PROC is invoked, the SYS parameter identifies the name of a Data Collector, as shown in the following example. The DOMPLEX Profile contains the names of the DB2 subsystems that you are monitoring.

```
//MONITOR EXEC PROC=DOMDC01,SYS=DC01
```

This example would be used in a batch job to start the Data Collector subsystem DC01. DOMPLEX Profiles are created by using the Administration function. Instructions for reviewing the DOMPLEX Profile created by the Installation Assistant are included in the product customization section of this chapter (see "Customization Tasks" on page 92).

The dispatching priority of the Data Collector should be higher than that of the DB2 MSTR address spaces to be monitored and should be higher than the IRLM.

To start the Data Collector subsystem by using the MVS START command, follow these steps:

**A** Copy the modified PROC into your SYS1.PROCLIB (or equivalent) started task library before issuing the MVS START command.

**B** Ensure that you have performed all security authorization steps (see "Controlling Access to the System and SQL Performance Products for DB2" on page 52). The procedure for defining an AUTHID for a started task varies with the security system used.

To start the Data Collector subsystem by using a batch job, follow these steps:

**A** Edit a data set to submit the Data Collector subsystem JCL.

**B** Create a JOB statement that meets your site requirements.

**C** Copy the modified PROC JCL into the data set after the JOB statement.

**D** Append the following statement to the PROC JCL:

```
//   PEND
//   EXEC PROC=DOMxxxx
```

(where *xxxx* is the Data Collector subsystem created by the Installation Assistant)

**E** Press **F3** (End) to save the data set.

***NOTE***

BMC Software recommends executing the products in batch only when testing the initial installation. After initial installation, run the product as a started task. Stopping the product when it is running in batch terminates the initiator in which it was running.

**2** Edit or review the Exception Facility procedure (ACTIVITY MONITOR only).

JCL for the Exception Facility PROC is customized by the Installer into the DOMXCEP member of the JCL data set.

You can start the Exception Facility in one of the following ways:

- specify the Exception Facility PROC to be started in the DOMPLEX Profile.

  If specified there, the Data Collector automatically starts the Exception Facility at initialization.

- issue the MVS START command from an operator console for the DOMXCEP PROC.
- invoke the DOMXCEP PROC from a batch job.

When the DOMXCEP PROC is invoked, the SYS parameter identifies the name of the Data Collector (Data Collector subsystem ID), not the name of a DB2 system. When the Data Collector starts the Exception Facility, it passes the Data Collector subsystem ID to the PROC automatically. Like the Data Collector, one Exception Facility can monitor a single DB2 or multiple DB2s. For more information about the Exception Facility, see the ACTIVITY MONITOR for DB2 Reference Manual.

The Exception Facility must run at a dispatching priority that is higher than that of a normal TSO user but lower than that of DB2.

To start the Exception Facility PROC manually, use the following statement as a model. This statement would start the Exception Facility for a Data Collector subsystem called DC01.

```
//MONITOR  EXEC PROC=DOMXCEP,SYS=DC01
```

To start the Exception Facility by using a batch job, follow these steps:

**A** Edit a data set to submit the Data Collector subsystem JCL.

**B** Create a JOB statement that meets your site requirements.

**C** Copy the modified PROC JCL into the data set after the JOB statement.

**D** Append the following statement to the PROC JCL:

```
//   PEND
//   EXEC PROC=DOMXCEP
```

**E** Press **F3** (End) to save the data set.

***NOTE***

BMC Software recommends executing the products in batch only when testing the initial installation. After initial installation, run the product as a started task. Stopping the product when running in batch causes the initiator in which it was running to be terminated.

# Add or Replace the CLIST Member for the ISPF Interface

This step is *required* unless you are running only under the VTAM Router.

If you used the Installer to modify and submit the JCL (tailored model), replace the DOMCLIST member that executes the product initialization in your CLIST library with the member from the JCL library.

If you did not use the Installer to modify and submit the JCL, use the DOMCLIST member in the CNTL library (untailored model), and follow the modification instructions provided to point to the new product libraries. Modify this CLIST to specify the new product data set names. This CLIST dynamically allocates ISPF libraries and invokes the product.

Execute the CLIST by using the command EX DOMCLIST.

***NOTE***

If your site uses VB CLISTs rather than FB CLISTs, you can reblock the CLIST by executing DOMRBLK provided in the CNTL data set. Execution of DOMRBLK allocates a new VB CLIST, so you must modify DOMRBLK to provide old and new high-level qualifiers for data sets and a volume for the allocation of the new CLIST library.

Figure 5 shows the CLIST for executing a product.

**Figure 5 CLIST for Executing a Product (Part 1 of 3)**

```
/*Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z
/*
/*    CLIST FOR EXECUTION OF THE SYSTEM AND SQL PERFORMANCE PRODUCTS
/*
/*----> CHANGE:  ?BMC-HLQ?  =  DATA COLLECTOR HIGH-LEVEL QUALIFER
/*----> CHANGE:  ?BBI-HLQ?  =  MAINVIEW       HIGH-LEVEL QUALIFER
/*
/*    *********
/*    * NOTES *
/*    *********
/*    THE PRD= PARM CAN BE USED TO CONTROL THE EXECUTION OF WHICH
/*    LICENSED SYSTEM AND SQL PERFORMANCE PRODUCTS WILL BE SHOWN AS
/*    OPTIONS ON THE INITIAL PRODUCT MENU.
/*
/*    THE 'PRD' PARM IS ALSO USED TO CONTROL THE ALLOCATION OF
/*    ADDITIONAL FILES REQUIRED BY SOME COMPONENTS.  THE COMPONENT
/*    CODES ARE AS FOLLOWS:
/*        PRD(A)    ACTIVITY MONITOR FOR DB2 (LEGACY ONLY)
/*            B     MAINVIEW FOR DB2
/*            P     POOL ADVISOR
/*            O     OPERTUNE
/*            D     SYSTEM PERFORMANCE SOLUTION (INCLUDES B,P,O)
/*
/*            Q     APPTUNE
/*            S     SQL EXPLORER
/*            I     APPLICATION PERFORMANCE SOLUTION (INCLUDES Q,S)
/*
/*   TO SPECIFY MULTIPLE PRODUCTS, USE ALL COMPONENT CODES TOGETHER,
/*    FOR EXAMPLE, PRD(PQS)
/*
/*    SPECIFYING 'PRD()' WILL CAUSE ALL FILE TYPES TO BE ALLOCATED
/*     IF THEY EXIST

/*  *** NOTE ***
/*  THE DP= PARM CAN BE USED TO SPECIFY A DEFAULT DOMPLEX THAT WILL
/*  BE AUTOMATICALLY SELECTED FOR USE DURING YOUR PRODUCT SESSION.
/*  THE DATA COLLECTOR FOR THAT DOMPLEX MUST BE ONE YOU ARE
/*  AUTHORIZED TO USE.  FOR EXAMPLE:  P(DP=DOMPLEX)
/*
/*  *** NOTE ***
/*  TO SPECIFY BOTH PARMS (PRD AND DP), YOU MUST SEPARATE THE PARMS
/*  WITH A COMMA AND ENCLOSE THE PARMS IN SINGLE QUOTES.
/*  FOR EXAMPLE: P('PRD=AQ,DP=DOMPLEX')
/*
/*Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z/Z
```

**Figure 5 CLIST for Executing a Product (Part 2 of 3)**

```
 CONTROL MSG NOSYMLIST NOCONLIST NOLIST NOFLUSH

 IF &SYSISPF ¬= ACTIVE THEN DO
    WRITE THIS CLIST REQUIRES ISPF TO BE ACTIVE
    EXIT  CODE(12)
END

 SET &PRDLEN = &LENGTH(&PRD)
 IF &PRDLEN > 0 THEN SET &P=&STR(PRD=&PRD,&P)

 ALLOC F(DOMPLIB)  DA('?BMC-HLQ?.PLIB')        SHR REU
 ALLOC F(DOMTLIB)  DA('?BMC-HLQ?.TLIB')        SHR REU
 ALLOC F(DOMLOAD)  DA('?BMC-HLQ?.LOAD')        SHR REU
 ALLOC F(PSSMLIB)  DA('?BMC-HLQ?.MLIB')        SHR REU
 ALLOC F(PSSSLIB)  DA('?BMC-HLQ?.SLIB')        SHR REU
 ALLOC F(PSSCLIB)  DA('?BMC-HLQ?.CLIST')       SHR REU
 ALLOC F(PSSCNTL)  DA('?BMC-HLQ?.CNTL(PSSREPA)')  SHR REU

/*****************************************************************
/* SPECIAL OPERTUNE ALLOCATIONS
/*****************************************************************

 IF (&PRDLEN > 0) +
    THEN IF (&SYSINDEX(O,&PRD) > 0 ) | (&SYSINDEX(D,&PRD) > 0 ) +
            THEN GOTO DDTALLOC
            ELSE GOTO DDTSKIP
    ELSE IF ( &SYSDSN('?BMC-HLQ?.DDTPROFS') = OK ) +
            THEN GOTO DDTALLOC
            ELSE GOTO DDTSKIP
DDTALLOC: +
    ALLOC F(DDTPROFS) DA('?BMC-HLQ?.DDTPROFS') SHR REU
    ALLOC F(DDTLOAD)  DA('?BMC-HLQ?.LOAD')     SHR REU
    ALLOC F(DDTTRACS) SYSOUT REUSE

 DDTSKIP: CONTROL MSG
/*****************************************************************
/* SPECIAL MAINVIEW ALLOCATIONS
/*****************************************************************
 IF (&PRDLEN > 0) +
    THEN IF (&SYSINDEX(B,&PRD) > 0 ) | (&SYSINDEX(D,&PRD) > 0 ) +
            THEN GOTO BDSALLOC
            ELSE GOTO BDSSKIP
    ELSE IF ( &SYSDSN('?BBI-HLQ?.BBLINK') = OK ) +
            THEN GOTO BDSALLOC
            ELSE GOTO BDSSKIP

BDSALLOC: +
ALLOC F(BBCLIB)  DA('?BBI-HLQ?.BBCLIB')   SHR REU
    ALLOC F(BBTLIB)  DA('?BBI-HLQ?.BBTLIB')   SHR REU
    ALLOC F(BBVDEF)  DA('?BBI-HLQ?.BBVDEF')   SHR REU
    ALLOC F(BBSDEF)  DA('?BBI-HLQ?.BBSDEF')   SHR REU
    ALLOC F(PNLLIB)  DA('?BBI-HLQ?.BBPLIB')   SHR REU
    ALLOC F(MSGLIB)  DA('?BBI-HLQ?.BBMLIB')   SHR REU
    ALLOC F(BBIPROF)  DA('?BBI-HLQ?.BBPROF')   SHR REU
    CONTROL NOMSG
    ALLOC F(BBILINK)  DA('?BBI-HLQ?.BBLINK')   SHR REU
```

**Figure 6 CLIST for Executing a Product (Part 3 of 3)**

```
BDSSKIP: CONTROL MSG
/*****************************************************************
/* REMOVE COMMENT ON SYSOUT ALLOCATION IF SORT MESSAGES ARE BEING
/*  SENT TO THE TERMINAL.
/* REMOVE COMMENT ON SORT WORK FILE ALLOCATIONS AND FREE STATEMENT
/*  AT THE END OF THIS CLIST TO PRE-ALLOCATE SORT WORK FILES.
/*****************************************************************
/* ALLOC F(SYSOUT)   DUMMY SHR REU
/* ALLOC F(U000WK01) UNIT(SYSDA) SPACE(10,5) CYL NEW REU
/* ALLOC F(U000WK02) UNIT(SYSDA) SPACE(10,5) CYL NEW REU
/* ALLOC F(U000WK03) UNIT(SYSDA) SPACE(10,5) CYL NEW REU
/* ALLOC F(U000WK04) UNIT(SYSDA) SPACE(10,5) CYL NEW REU
/* ALLOC F(U000WK05) UNIT(SYSDA) SPACE(10,5) CYL NEW REU
/* ALLOC F(U000WK06) UNIT(SYSDA) SPACE(10,5) CYL NEW REU

 ALTLIB ACTIVATE APPLICATION(CLIST) FILE(PSSCLIB) UNCOND

 ISPEXEC LIBDEF ISPPLIB LIBRARY ID(DOMPLIB)
 ISPEXEC LIBDEF ISPTLIB LIBRARY ID(DOMTLIB)
 ISPEXEC LIBDEF ISPMLIB LIBRARY ID(PSSMLIB)
 ISPEXEC LIBDEF ISPSLIB LIBRARY ID(PSSSLIB)
 ISPEXEC LIBDEF ISPLLIB LIBRARY ID(DOMLOAD)

 CONTROL NOMSG
 FREE FI(SYSIN SYSPRINT)
 CONTROL MSG

 ISPEXEC SELECT CMD(DOMDMAIN &P) MODE(FSCR) NEWAPPL(DOM2) PASSLIB

 ISPEXEC LIBDEF ISPLLIB
 ISPEXEC LIBDEF ISPPLIB
 ISPEXEC LIBDEF ISPTLIB
 ISPEXEC LIBDEF ISPMLIB
 ISPEXEC LIBDEF ISPSLIB

ALTLIB DEACTIVATE APPLICATION(CLIST)

 EXIT: +
   FREE F(DOMLOAD DOMPLIB DOMTLIB)
   FREE F(PSSMLIB PSSSLIB PSSCLIB PSSCNTL)
   CONTROL NOFLUSH NOMSG
   FREE F(DDTPROFS DDTLOAD)
   FREE F(PNLLIB MSGLIB BBIPROF BBILINK)
   FREE F(BBVDEF BBSDEF BBCLIB BBTLIB)
/* FREE F(U000WK01 U000WK02 U000WK03 U000WK04 U000WK05 U000WK06)

   EXIT  CODE(0)
```

# Make a Product Available from an ISPF Menu

To make a product available from an ISPF menu, modify ISR@PRIM or an equivalent panel as follows:

1 In the )BODY )AREA, add the following line:

```
%O      + PERFORMANCE ACTIVITY PRODUCTS FOR DB2+
```

2 In the )PROC area, add the following line:

```
O,'CMD(DOMCLIST) NEWAPPL'
```

The installation customizes a panel that provides access to any or all products. To use it, modify ISR@PRIM or an equivalent panel as follows:

1 In the panel area, add the following line:

```
%P     + PERFORMANCE ACTIVITY PRODUCTS FOR DB2
```

2 In the )PROC area, add the following line

```
P,'PANEL(BMCDISPN)'
```

3 Exit and reenter ISPF.

4 Invoke the products by selecting option **P** from the Performance products Install System menu or a panel of your choice.

***NOTE***

If your system security restricts the access of command processors under TSO, you must add DOMDMAIN, DMDQIED2, PSSSQLX, and PSSDCL (for SQL Explorer) to the list of commands that are allowed.

Installing maintenance has no effect on product authorization. However, you must ensure that your product authorization tables reside in the new production libraries. For more information, see the *OS/390 and z/OS Installer Guide*.

# Invoke SQL Explorer Directly

This section is *optional*.

To invoke the SQL Explorer for DB2 product directly, use the PSSCLIST that was customized during installation.

# Invoke BMC Software Products without LIBDEFs

This section is *optional*.

For those BMC Software products that provide an online dialog panel, the installation system generates a BMC Software-supplied ISPF interface based on the options and products that you specify during installation. BMC Software products that are installed with different high-level qualifiers (that is, products that are installed individually and that might reside in different libraries) can be accessed from the interface.

The interface consists of a CLIST (BMCDRIVC) and a panel (BMCDRIV) that will list all the products you installed. CLISTs that are particular to the individual products in this list are invoked when you select them. The System and SQL Performance products use DOMCLIST. You can use this combination without making changes to your TSO logon procedure. BMC Software recommends that new users use the supplied ISPF interface. The System and SQL Performance products require you to execute the CLIST from one of the ISPF dialog panels in your system.

The DOMCLIST uses the ISPF LIBDEF command to allocate all the BMC Software product libraries. The installation system customizes DOMCLIST to include the data set names that you used when you installed the products. Subsequent LIBDEF commands from within the product are stacked.

If you have your own ISPF environment and do not want to invoke DOMCLIST with the LIBDEF command, be sure to include the DOMCLIST-referenced data sets in your environment. You must also perform the following actions:

- Allocate the following DDs:
  - DOMLOAD (for the product load library)
  - PSSCNTL (for the data set that contains the default layout member for Explain processing)
- Perform an ALTLIB command on the PSSCLIB file for the product CLIST library.

To invoke the product, execute the following command from your panel, where *pp* is a list of the products to enable and *dc* is the two-character prefix of the DOMPLEX name:

```
SET P = &STR('PRD=pp,DP=dcPLEX')
ISPEXEC SELECT CMD(DOMDMAIN &P) MODE(FSCR) NEWAPPL(DOM2) PASSLIB
```

You can enable as many of the following products as needed:

| Option | Product |
|---|---|
| A | ACTIVITY MONITOR for DB2 (legacy only) |
| B | MAINVIEW for DB2 |
| P | Pool Advisor for DB2 |
| O | OPERTUNE for DB2 |
| D | SmartDBA System Performance for DB2 |
| Q | APPTUNE for DB2 |
| S | SQL Explorer for DB2 |
| I | Application Performance for DB2 |

# Verify or Change the Global Resource Enqueues

This task is *optional*, and necessary only if you have a shared-DASD environment and use a global resource manager such as GRS. The System and SQL Performance products mostly use SYSTEMS enqueues with resource names that are prefixed by *AMforDB2*.

Add an entry to ensure that SYSTEMS-level enqueues are propagated throughout the complex.

# Refresh the MVS Linklist Lookaside

This task is *optional*. Perform this step only if both of the following conditions are true:

- You have installed the product load modules into a LNKLST data set.
- You are using the MVS Linklist Lookaside (LLA) feature.

**1** If both conditions are true, issue the following command from an MVS console:

```
F LLA,REFRESH
```

This command builds a new copy of the Linklist Lookaside directory in virtual storage. The refresh might take a few minutes to complete.

**2** Check the system log for the following confirmation message:

```
CSV210I LNKLST LOOKASIDE REFRESHED
```

**3** In a shared-DASD environment, issue the F LLA,REFRESH command on each CPU that is using one or more of the System and SQL Performance products.

# Verify the Product Authorization

All BMC Software products require product authorization before you can use them. This section describes how you can authorize your products.

You can apply your BMC Software authorization passwords when you install the System and SQL Performance products. If you are a licensed user and have already received and applied the permanent BMC Software authorization passwords, ensure that the appropriate authorization modules are saved and copied to the new load library after you execute the Full installation. The authorization modules are created when the password is added.

You can also use the BMC Software Product Authorization utility to apply passwords and to change your CPU configuration. To use the Product Authorization utility, see the *OS/390 and z/OS Installer Guide*.

# Customization Tasks

This section describes how to start the System and SQL Performance products that you have installed, create or review profiles, and check key values to make them consistent with the standards at your site.

Not all customization tasks apply to all System and SQL Performance products. In some cases, the panels that are encountered and the fields that are displayed on product panels differ, depending on the active product mix. The panel examples in this book assume that all System and SQL Performance products are installed.

Table 15 summarizes the System and SQL Performance products customization tasks.

**Table 15 System and SQL Performance Products Customization Tasks**

| Tasks | Page |
|---|---|
| 1. Verify the DOMPLEX Profile | 93 |
| 2. Verify or Change the Global Options Settings | 115 |
| 3. Check the Default User Profile | 118 |
| 4. Install the VTAM Router | 121 |
| 5. Start the Data Collector | 139 |
| 6. Start the Exception Facility | 140 |
| 7. Verify the Installation | 144 |

An IPL might be needed to install and use these products under the following circumstances:

- The products are being installed in a library that is not yet APF-authorized.
- You are using RACF. Add your product user ID to table ICHRIN03 even if RACF is not controlling access to DB2.

ACTIVITY MONITOR only:
As an option, you can invoke ACTIVITY MONITOR as a VTAM application. The VTAM application enables you to access ACTIVITY MONITOR without the processing and storage overhead generated by TSO. For more information about installing the VTAM application, see "Install the VTAM Router" on page 123.

# Verify the DOMPLEX Profile

This task is required for full and SSID installations.

DOMPLEX Profiles are used to define one or more Data Collector subsystems for monitoring DB2. Each Data Collector in a DOMPLEX must run on a separate MVS image and can monitor all of the DB2 subsystems on that same MVS image. You can define multiple DOMPLEXes, but each Data Collector can be defined to only one DOMPLEX.

The DOMPLEX Profile contains the parameters that affect product initialization, identifies the DB2 subsystems to be monitored and defines trace data sets. The DOMPLEX Profile you created by using the Installation Assistant will contain the values you specified when you ran the Installation Assistant. You can modify these values as you follow the examples in this chapter. These examples will use a DOMPLEX Profile called DC01PLEX and a Data Collector called DC01.

The names of Data Collectors you create must consist of four characters and cannot be the same as the name of the DB2 subsystem or any other subsystem on the MVS system.

This task consists of the following subtasks:



## Invoke the Product from ISPF

You do not need an active Data Collector to access the Report Manager, but functionality will be limited to those tasks that do not require an active Data Collector (administration and customization, for example).

To start a product session, follow these steps:

1. Log on to TSO.
2. Invoke ISPF from TSO.
3. Navigate to the ISPF menu that you previously modified to invoke the System and SQL Performance products (see "Add or Replace the CLIST Member for the ISPF Interface" on page 84).

4 Select the option to invoke the products or execute your CLIST.

The product logo is displayed, followed by a main menu.

***NOTE***

The main menu that is displayed depends on the active product mix. If a single product is invoked, the main menu for that product is displayed. If you are invoking multiple System and SQL Performance products, the common main menu for individual products is displayed. Only active products are listed on the menu. If you are invoking one or more solutions (with or without one or more individual products), a menu is displayed that reflects the active mix of products and solutions (see Figure 7).

**Figure 7 System and SQL Performance for DB2 Main Menu**

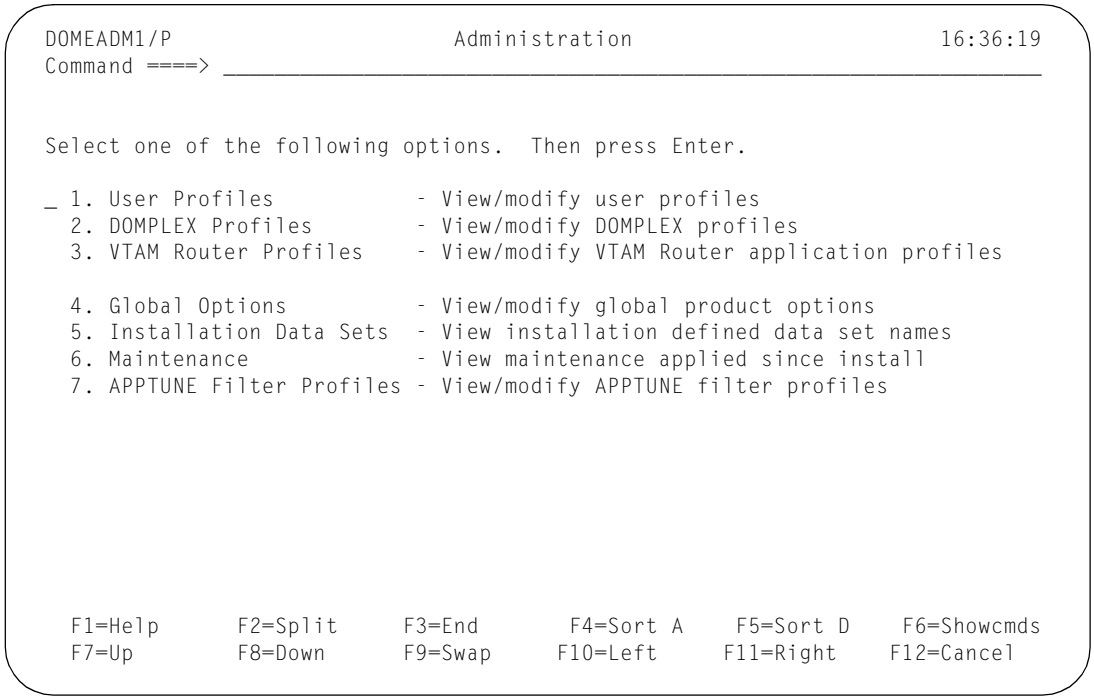
```
DOMESELT/I            System and SQL Performance for DB2              13:52:57
Command ====>

Current Data Collector : SPDM    Status : ACTIVE

  Select one of the following options.  Then press Enter.

 _ I. Application Perf     - DB2 application, SQL and index analysis
   D. System Perf          - DB2 subsystem and storage pool analysis
   A. ACTIVITY MONITOR     - DB2 subsystem performance monitor

   1. DOMPLEXes            - Select/change DOMPLEX connection
   2. Session status       - View current session resource usage
   3. User Options         - View/modify user options
   4. Log Operations       - View/print logged screens and reports
   5. Administration       - Manage product and user profiles

   H. Help                   Y. Summary of Changes
   X. Exit



  F1=Help      F2=Split     F3=End      F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap    F10=Left     F11=Right    F12=Cancel
```

## Check the Values in the DOMPLEX Profile

**1** Display the Administration menu (Figure 8).

The Administration option appears on all main menus, but the option number is not the same on all main menus. Select the option that is labeled **Administration**.

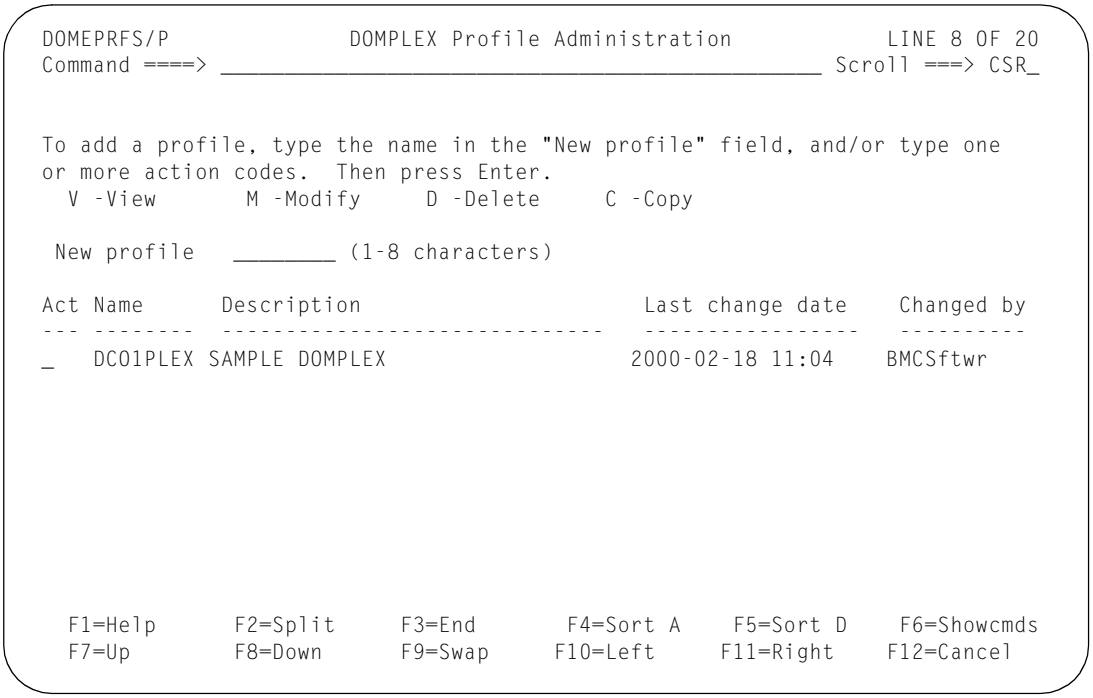
**Figure 8 Administration Menu**




**2** From the Administration menu, select option **2** and press **Enter**.

The DOMPLEX Profile Administration panel (Figure 9 on page 96) is displayed.

**Figure 9 DOMPLEX Profile Administration Panel**

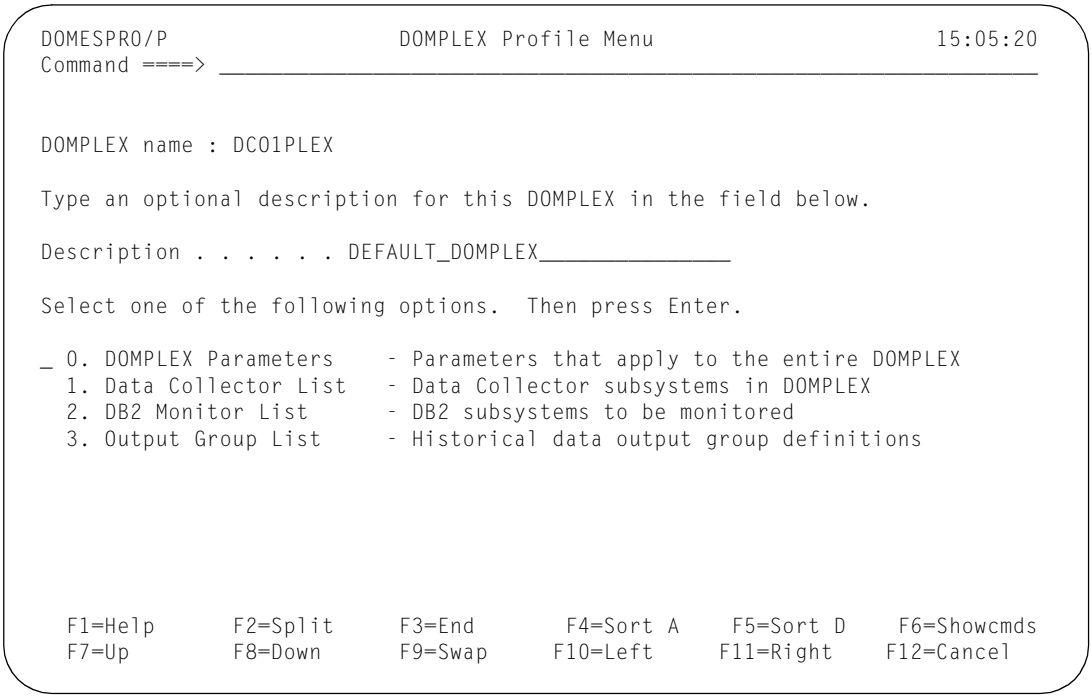



**3** From the DOMPLEX Profile Administration panel, select the DOMPLEX Profile that you created by using the Installation Assistant. This panel is also the starting point for creating a new DOMPLEX Profile.

- To select a DOMPLEX Profile for modification, move the cursor to the **Act** field beside the DOMPLEX, type **M** (Modify), and press **Enter.**
- To create a new DOMPLEX Profile, type the name of the profile to be created in the **New profile** field and press **Enter.**
- To create a new DOMPLEX Profile by copying from an existing profile, type the name of the profile to be created in the **New profile** field, type **C** in the **Act** field next to the name of the profile to be copied, and press **Enter.**

The DOMPLEX Profile Menu (Figure 10 on page 97) is displayed.

**Figure 10 DOMPLEX Profile Menu**




The DOMPLEX Profile Menu contains the following options for changing the DOMPLEX Profile:

- **DOMPLEX Parameters** (option 0) is used to set values that apply to the entire DOMPLEX.
- **Data Collector List** (option 1) is used to define the initialization parameters for each Data Collector subsystem (for example, the number of concurrent batch and online users allowed).
- **DB2 Monitor List** (option 2) is used to identify and define the DB2 subsystems that can be monitored by the Data Collectors in the DOMPLEX.
- **Output Group List** (option 3) is used to define the output groups that will be used to buffer trace records and to define and allocate the trace data sets to which records will be written from the output groups.

For ease of installation, this book assumes that default options are set in the Installation Assistant for most parameters and discusses only option **2** (DB2 Monitor List) and option **3** (Output Group List).

A detailed description of all DOMPLEX Profile options is provided in the *System and SQL Performance for DB2 Administrator Guide* and in the online Help that accompanies the product.

If you press **F1** while the cursor is positioned on a text-only area of a panel, a description of that panel is displayed. If you press **F1** while the cursor is positioned on an input or output field on a panel, specific information about that field is displayed.

# Check or Modify the DB2 Subsystems to Monitor

One Data Collector can monitor all DB2 subsystems on the MVS system.

***NOTE***

You must define at least one DB2 subsystem for each DOMPLEX Profile. The Data Collector will not start unless there is at least one DB2 subsystem defined.

To check the DB2 subsystems specified in the Installation Assistant, follow these steps:

1 Select option **2** from the DOMPLEX Profile Menu and press **Enter**.

The DOMPLEX DB2 List panel (Figure 11) is displayed.

**Figure 11 DOMPLEX DB2 List Panel**

```
DOMESPR2/P                      DOMPLEX DB2 List                      LINE 1 OF 2
Command ====> ____________________________________________________ Scroll ===> CSR_


DOMPLEX name: DOMDXJ

To add a DB2, type the DB2 subsystem ID in the "New DB2" field, and/or type
one or more action codes.  Then press Enter.
  S -Select        D -Delete        C -Copy

 New DB2  ____     (DB2 subsystem ID)
                   Enable    Activate
                   with AM   Exceptions                                  Enable   SQL
                   or MVDB2  with AM   Start   Collection Opts  Pool     Explorer
Act Name           -------   ---------- APPTUNE ABLTIEOFS UCRTW Advisor  Available
--- ----           -------   ---------- ------- ---------- ---- -------  ---------
_ *                Y           Y        N     YYYYYYNYN NNNNN  N        Y

                   MAINVIEW for DB2 –
                   Data Collector
                                ACTIVITY
                                MONITOR
                                          APPTUNE and
                                          Application Performance
                                                                Pool Advisor
                                                                and System
                                                                Performance
                                                                          SQL Explorer
                                                                          and Application
                                                                          Performance
  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap      F10=Left     F11=Right    F12=Cancel
```

The DB2 subsystems that are specified in the Installation Assistant are listed on the DOMPLEX DB2 List panel. You can delete DB2s from or add DB2s to the list that will be monitored by this DOMPLEX.

2 To add a DB2 subsystem, type the DB2 subsystem ID in the **New DB2** field and press **Enter**.

***NOTE***

An asterisk (*) is used to specify all DB2s. If you use an asterisk, the definitions of all DB2s on the system will be the same.

You can also select a DB2 from the list to examine or modify the definition. Type **S** beside the appropriate subsystem name that is listed under the **Name** field and press **Enter.**

The DB2 Definition panel (Figure 12) is displayed.

**Figure 12 DB2 Definition Panel (DOMESP20)**

```
DOMESP20/P                    DB2 Definition                          08:12:11
Command ====> ____________________________________________________________________


DB2 subsystem name : DEAL                    DOMPLEX name : DOCUMENT

Specify the values that will apply to this DB2 below.  Then EXIT.

Monitor this DB2 with AM or MVDB2/DC . . . . . . . . Y        (Y=Yes, N=No)
Monitor this DB2 with Pool Advisor/System Perf . . . Y        (Y=Yes, N=No)
Auto start APPTUNE/App Perf data collection  . . . . Y        (Y=Yes, N=No)
SQL Explorer available for use with this DB2 . . . : Y        (Y=Yes, N=No)

Dynamic Explain plan name  . . . . . . . . . . . . . DAA410D1
DB name of dynamically created WHAT-IF PLAN_TABLE  . BMCDAA41
TS name of dynamically created WHAT-IF PLAN_TABLE  . BMCPPLAN
Auto start exceptions  . . . . . . . . . . . . . . . N        (Y=Yes, N=No)
DB2 statistics collection interval . . . . . . . . . __30     (0-9999 minutes)
XBM data set statistics collection interval  . . . . ___0     (0-1440 minutes)

Set/View AM or MVDB2/DC IFCID trace controls?. . . . N        (Y=Yes, N=No)
Change/View APPTUNE/App Perf collection options? . . N        (Y=Yes, N=No)
  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

3 Check or set the values that define the DB2.

Use the DB2 Definition panel to verify or change the values that are listed in Table 16 on page 100 for the selected DB2.

**Table 16 Fields and Descriptions for the DB2 Definition Panel (Part 1 of 3)**

| Products | Field | Description |
|---|---|---|
| ACTIVITY MONITOR<br>MAINVIEW for DB2 – Data Collector) | **Monitor this DB2 with AM or MVDB2/DC** | Determines whether this DB2 subsystem is monitored by ACTIVITY MONITOR or MAINVIEW for DB2 – Data Collector. |
| Pool Advisor<br>System Performance | **Monitor this DB2 with Pool Advisor/System Perf** | Determines whether this DB2 subsystem is monitored with Pool Advisor. |
| APPTUNE<br>Application Performance | **Auto start APPTUNE/ App Perf data collection** | Determines whether SQL data will be collected automatically from this DB2 subsystem when the Data Collector is started. BMC Software recommends that you start using this option with a value of **Y** for all DB2 subsystems to be analyzed. When you have a better understanding of your collection requirements, you might want to modify your data collection strategy by using this option. To start and stop collection dynamically, see the APPON and APPOFF commands as described in online Help. To change collection criteria dynamically, see the APPCONFG command. |
| SQL Explorer<br>Application Performance | **SQL Explorer available for use with this DB2** | Indicates whether the DB2 can be used with SQL Explorer. |
| ACTIVITY MONITOR<br>APPTUNE<br>SQL Explorer<br>MAINVIEW for DB2 – Data Collector<br>Application Performance | **Dynamic Explain plan name** | The name of the plan used by DB2 for dynamic Explain. This is the plan name that was specified using the Install System. The default plan name is DAA*vrm*D1 (where *vrm* is the current release level). If this default was used, DAA*vrm*D1 will be displayed here. If a different plan name was used, that name will be displayed here. |
| Application Performance | **DB name of dynamically created WHAT-IF PLAN_TABLE** | The name of the database into which PLAN_TABLEs will be created dynamically when the WHAT-IF feature of Application Performance is used.<br><br>**Note**: The database named must be described in the current server's catalog and cannot be DSNDB06 or DSNDB07.<br><br>**When Specifying With the Installation Assistant**<br>This will be the same database name that was specified using the Installation Assistant. The default database name is BMCPERF. If this default was used, BMCPERF will be displayed here. If a different database name was used, that name will be displayed here.<br><br>**When Specifying Without the Installation Assistant**<br>If you specify a database name without a table space name, the PLAN_TABLE is created specifying **IN DATABASE <database-name>**. The table space is implicitly created in <database-name> and is derived from the table name. To create a table space implicitly, the privilege set of the owner specified in the DYNAMIC EXPLAIN command must have SYSADM or SYSCTRL authority; DBADM, DBCRTL, or DBMAINT authority; or the CREATETS privilege for the database. The owner must also have USE privilege for the default buffer pool and default storage group of the database. |

**Table 16 Fields and Descriptions for the DB2 Definition Panel (Part 2 of 3)**

| Products | Field | Description |
|---|---|---|
| Application Performance | **DB name of dynamically created WHAT-IF PLAN_TABLE (cont.)** | If you specify neither a database nor a table space, **IN DATABASE DSNDB04** is implied and the table space is created implicitly in DSNDB04 with its name derived from the table name.<br><br>Although the WHAT-IF feature and the Explain feature are separate processes, they can both use the same database name and table space name. If you use the same database name, specify the name that was specified on panel DAAP081 in the installation system and was created by job $C40INST. The default database name is **BMCDAAvr** (where *vr* is the current release level). |
| Application Performance | **TS name of dynamically created WHAT-IF PLAN_TABLE** | Determines the name of the table space into which PLAN_TABLEs will be created dynamically when the WHAT-IF feature of Application Performance is used.<br><br>**Note:** If you specify a table space name without a database name, the table space must belong to DSNDB04.<br><br>**When Specifying With the Installation Assistant**<br>The table space displayed here will be the table space specified using the Installation Assistant. The default table space name is PLANTAB. If this default was used, PLANTAB will be displayed here. If a different table space name was used, that name will be displayed here.<br><br>**When Specifying Without the Installation Assistant**<br>If the table space is created explicitly, the owner must have USE privilege on the table space and CREATETAB privilege on the database, or if you specify a table space name, the owner specified in the DYNAMIC EXPLAIN command must have SYSADM or SYSCTRL authority or DBADM authority for the database. If you name a partitioned table space, you cannot load or use the table until its partitioned index is created.<br><br>Although the WHAT-IF feature and the Explain feature are separate processes, they can both use the same database name and table space name. If you decide to use the same table space name, specify BMCPPLAN in this field. Table space BMCPPLAN is created by the $C40INST installation job. |
| (ACTIVITY MONITOR) | **Auto start exceptions** | Determines whether exception sampling is started automatically for this DB2 subsystem. When the Exception Facility is activated for a Data Collector subsystem, the DB2 subsystems associated with that Data Collector are checked for this value. |
| ACTIVITY MONITOR MAINVIEW for DB2 – Data Collector) | **DB2 statistics collection interval** | The interval at which ACTIVITY MONITOR and MAINVIEW for DB2 – Data Collector produce statistics records (IFCIDs BMC 242, BMC 251, BMC 252, BMC 254, and BMC 255) to be written to the trace data sets. |

**Table 16 Fields and Descriptions for the DB2 Definition Panel (Part 3 of 3)**

| Products | Field | Description |
|---|---|---|
| ACTIVITY MONITOR | **XBM data set statistics collection interval** | The interval at which XBM produces its own statistics records (IFCID BMC 035) and writes them to the trace data set for each DB2.<br><br>This value is meaningful only if you have the BMC Software EXTENDED BUFFER MANAGER (XBM™) product installed at your site. |
| ACTIVITY MONITOR<br>MAINVIEW for DB2 – Data Collecto) | **Set/View AM or MVDB2/DC IFCID trace controls?** | Determines whether the panels are displayed that enable you to set or view ACTIVITY MONITOR or MAINVIEW for DB2 – Data Collector IFCID trace controls for this DB2 subsystem. |
| APPTUNE<br>Application Performance | **Change/View APPTUNE/App Perf collection options?** | Determines whether the APPTUNE Collection Controls menu is displayed (providing access to collection options for APPTUNE reporting). |

***NOTE***

Step 4 applies only to APPTUNE and Application Performance. If you are not installing either of these products, see page 105.

**4** Set the SQL statistics collection interval (APPTUNE and Application Performance).

**A** Specify **Y** for the **Change/View APPTUNE/App Perf collection options?** field, and press **Enter**.

The Collection Controls menu is displayed.

**B** Select option 4 (**SQL statistics collection interval**).

The SQL Statistics Collection Interval panel (Figure 13 on page 103) is displayed.

**Figure 13 SQL Statistics Collection Interval Panel (DOMESPQ3)**

```
DOMESPQ3/P            SQL Statistics Collection Interval              15:59:33
Command ====> ____________________________________________________________________


DB2 subsystem name : DBD2                   DOMPLEX name : IODQPLEX

Set the statistics collection interval for this DB2.
Select one of the following :

Type a single collection interval. . . . . : 1440     (1-1440 minutes)
Select varying collection intervals from scale . . : N        (Y=Yes/N=No)

Intervals must begin on an hour boundary.
Type S to set interval start times.

    00    01    02    03    04    05    06    07    08    09    10    11
     |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
    .   .   .   .   .   .   .   .   .   .   .   .

    12    13    14    15    16    17    18    19    20    21    22    23
     |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
    .   .   .   .   .   .   .   .   .   .   .   .
  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap      F10=Left     F11=Right    F12=Cancel
```

Use this panel to specify the interval (in minutes) or multiple intervals (in one-hour increments) at which data is written from the reduction table to the trace data sets:

- If you specify a single interval, data is written each time the specified number of minutes is reached.
- If you specify multiple intervals of different lengths, data is written each time a new interval begins.

***NOTE***

You cannot specify both options.

5 Use the SQL Statistics Interval panel to verify or change values for the fields that are listed in Table 17:

**Table 17 Fields and Descriptions for the SQL Statistics Interval Panel**

| Field | Description |
|---|---|
| **Type a single collection interval** | If you specify a value for this field, all intervals will have the same specified length. Data will be written from the reduction table to the trace data sets at the end of each interval. |
| **Select varying collection intervals from scale** | If you type **Y** in this field and press **Enter,** you can specify intervals of varying length on the scale. Type **S** at each hour upon which you want an interval to begin. All intervals must begin on an hour boundary.<br><br>**Example:**<br>An **S** specified at **00**, **08**, **12**, and **16** will create the following intervals each day:<br><br>Midnight to 8:00 A.M.<br>8:00 A.M. until noon<br>noon until 4:00 P.M.<br>4:00 P.M. until midnight<br><br>You can specify **Y** here or you can specify a value for **Type a single collection interval** if you want all intervals to be the same length. You cannot select both options.<br><br>**Notes:** The smaller the interval, the more often data is written, and the more storage is required. Keep in mind that the same amount of space is used to store 24 *days* of data with a 24-hour interval as is used to store 24 *hours* of data with a one-hour interval.<br><br>It is recommended that you specify the same statistical interval for all DB2s that are monitored by the same Data Collector. This will cause the beginning and ending times of intervals for all the DB2s to be synchronized. When you subsequently select an interval or range of intervals for APPTUNE or Application Performance reporting, you will get all the data you need for all DB2s. If the DB2s have different intervals, the reporting interval you select could begin or end in the middle of the statistical interval for some DB2s and some data you need in reports would be missing. |

6 Press **F3** (End) until the DOMPLEX Profile Menu (Figure 10 on page 97) is displayed.

## Check or Modify the Output Groups

An output group is a collection of specifications that are used to collect and process data for writing to the trace data sets. The Installation Assistant created one or more output groups in the DOMPLEX Profile that it created for you. You can modify any of these output groups or create additional ones.

Because the main purpose of output groups is to store records in trace data sets for batch or historical reporting, this section carries more importance to users of ACTIVITY MONITOR, APPTUNE, Pool Advisor, MAINVIEW for DB2 – Data Collector, and Application Performance than to users of SQL Explorer (which does not use the System and SQL Performance products batch or historical reporting functions).

When SQL Explorer is installed, the Installation Assistant creates an output group that meets SQL Explorer's minimal needs. It is not necessary for you to modify this output group or create any others.

**1** To check the output groups created by the Installation Assistant, select option **3** (Output Group List) from the DOMPLEX Profile Menu and press **Enter**.

The DOMPLEX Output Groups panel (Figure 14) is displayed.

**Figure 14 DOMPLEX Output Groups Panel**

```
DOMESPR3/P                  DOMPLEX Output Groups                  LINE 1 OF 2
Command ====> _____________________________________________ Scroll ===> CSR_

DOMPLEX name : DCO1PLEX
Select one of the following codes.  A base 01 group is automatically defined.
Action codes:  S -View/Modify     I -Insert     C -Copy    D -Delete

 Copy JCL data set    ____________________________________________________
                     Include the member name for a PDS.
 Submit on shutdown?  N (Y/N)          Data DB2          DSpc   -Trc Data Sets-
Act Grp  Data Classes                  Coll Subsystems    MBs   Cnt Cyls Status
--- ---  ----------------------------  ---- -----------  ----   --- ---- ------
 _   01  *                          --                --    20     0    0


  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

The output groups that are created by the Installation Assistant are listed. You can modify these output groups to meet your needs and create additional groups, if desired. The 01 group in Figure 14 is defined to include all DB2 subsystems, collect all data, and use a data space of 20 MB. No trace data sets are allocated.

Output groups are numbered sequentially from 01 to 64 (the maximum allowed). If you delete an output group, the number for that group will be reused when you create another group.

This panel is also used to specify the name of the data set that contains the JCL for automatic submission of the copy job and to indicate whether the copy job should be submitted whenever this Data Collector is shut down. The copy job copies the records in a full trace data set to a sequential file in SMF format. The DOMBCOPY utility is provided for this purpose. For more information, see the reference manual or user guide for the product that you are using. Check that the data set that was specified by using the Installation Assistant is displayed for each output group that it created.

2 To modify a group, type the **S** action code (View/Modify) in the **Act** field and press **Enter**. To create a new output group, type the **I** action code (Insert) in the **Act** field and press **Enter**.

The Output Group Definition menu (Figure 15) is displayed.

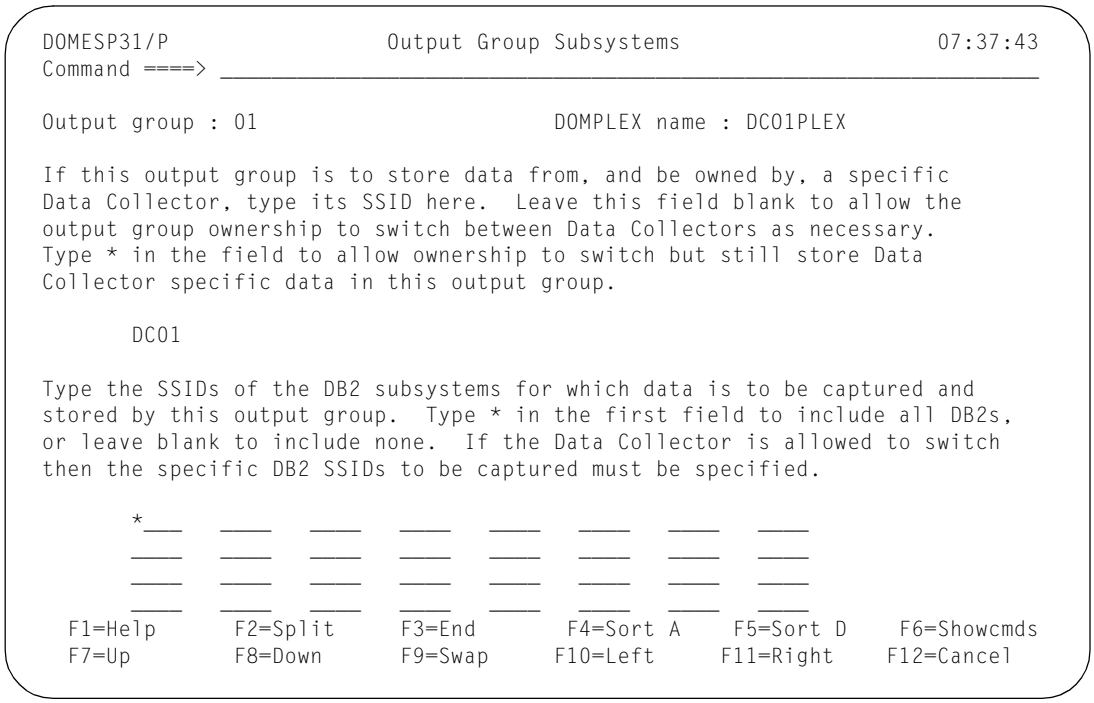
**Figure 15 Output Group Definition Menu**

```
DOMESP30/P                  Output Group Definition                  07:37:14
Command ====> ____________________________________________________________

Output group : 01                          DOMPLEX name : DC01PLEX

Data Collector  : DC01       DB2s : *
Data classes    : *
Data space size :   20 MB
Trace data sets :    0     Total size:    0 (cyls)       Status:

Select one of the following options.  Then press Enter.

_ 1. Subsystems      - Specify the subsystems supported by this output group
  2. Data classes    - Specify the IFCIDs supported by this output group
  3. Data space      - Specify the size of the data space used to buffer data
  4. Trace data sets - Specify the trace data sets used by this output group









  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

**A** Select option **1** (Subsystems) and press **Enter**.

The Output Group Subsystems panel (Figure 16) is displayed.

**Figure 16 Output Group Subsystems Panel**




Check that the values displayed on the Output Group Subsystems panel are the values specified by using the Installation Assistant. If you are creating a new output group, specify the subsystems that will be associated with the output group:

- Data Collector as the owner of the output group (*optional*)

  If you do not specify a Data Collector, the output group will be owned by whichever Data Collector is monitoring the specified DB2s.

- DB2 subsystems from which data is to be captured and stored by this output group

  You can specify up to 32 DB2 subsystems or use an asterisk (*) in the first field to capture and store data from all active DB2s on the same system as the specified Data Collector.

If you specify a Data Collector, only the data from DB2s that are running on the same system as that Data Collector are captured and stored by this output group. If you specify DB2s that are running on a different system, they are ignored.

If you do not specify a Data Collector, ensure that the DB2s that you specify are running on the same system. The output group can be owned by only one Data Collector at a time and that Data Collector can capture data only from DB2s running on the same system.

**B** Press **F3** (End) to return to the Output Group Definition panel and select option **2** (Data Classes).

The Output Group Data Classes panel (Figure 17) is displayed.

**Figure 17 Output Group Data Classes Panel**

```
DOMESP32/I                Output Group Data Classes             LINE 1 OF 18
Command ====>                                                 Scroll ===> CSR_

Output group : 01                          DOMPLEX name : DOCUMENT

Select one or more of the following classes to specify the IFCIDS that
will be captured and stored by this output group.

  Sel Class    IFCIDs
- --- -------- ------------------------------------------------------------
__ *  DB2ACCT  DB2 ACCOUNTING (3, 239 )
__ *  DB2SYS   DB2 STATISTIC EVENTS (1,2,31,54,102-107,172,196,199,202-210,23
__ *  DB2AUDIT DB2 AUDIT (140-146, 312)
__ *  DB2PERF  DB2 PERFORMANCE (ALL OTHER DB2 IFCIDS)
__ *  DCSYSTEM DATA COLLECTOR EVENTS (241,245)
__ *  XBMCACHE XBM CACHE RECORDS (33)
__ *  XBMDS    XBM DATASET RECORDS (35)
__ *  OPERTUNE OPERTUNE EVENTS (17)
__ *  AMSYSTEM ACTIVITY MONITOR DB2 STATS, EVENTS (241-2,245-6,251-2,254-6)
__ *  APSTACC  APPTUNE STMT ACCOUNTING, INTERVAL (6, 307, 318)
__ *  APSTACCS APPTUNE STMT ACCOUNTING SUMMARIES (308-310)
__ *  APSTMT   APPTUNE STMT TEXT,HOST VARS,EXCEPTIONS (4,5,10,11)
__ *  APERROR  APPTUNE ERRORS (7)
__ *  APOBJECT APPTUNE OBJECT SUMMARY (8, 9)
__ *  PAHIST   POOL ADVISOR HISTORY (072,082,086,089,095,096,097,098,099)
__ *  APINDEX  APPLICATION PERFORMANCE INDEX EVENTS (316,317)
__ *  APBIND   APPLICATION PERFORMANCE BIND EVENTS (315)
__ *  MVDBACC  MVDB2/DC  ACCOUNTING SUMMARY RECORDS (350,351,352)
```

Verify that the data classes selected for each output group are correct. You can change these specifications by selecting or deselecting data classes.

***NOTE***

If SQL Explorer is the only product that you are installing, there will be only one output group for the collection of DCSYSTEM data.

An asterisk (*) in the **Sel** field indicates a selected data class. Type **S** or **/** in the selection field beside a data class to select that data class. If you type **S** or **/** in the selection field beside a selected data class, the selection is canceled.

**C** Press **F3** (End) to return to the Output Group Definition panel and select option **3** (Data Space).

The Output Group Data Space panel (Figure 18) is displayed.

**Figure 18 Output Group Data Space Panel**

```
DOMESP33/P                Output Group Data Space                   17:17:36
Command ====> ____________________________________________________________

Output group : 01                           DOMPLEX name : DCO1PLEX

Specify the size of the data space that will be allocated to capture and
process instrumentation data for this output group.  The recommended size
depends on the types of data assigned to this group and the load expected
for all types combined.  Refer to online Help for recommendations and
other tips.

The size is specified in megabytes in the range 0 to 2000.  A value of zero
causes all IFCIDs assigned to this group to be immediately discarded.


             Data space size: __20 Mb    (0-2000)




  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

The value for the size of the data space displayed on the Output Group Data Space panel is the value that the Installation Assistant determined was necessary for the volume of work you specified. If you modify this value, be sure it is appropriate for conditions at your site.

The data space size indicates the size of the portion of the data space where the records that are captured for this output group are stored and processed before being written to the trace data sets.

The size is specified in megabytes. Valid values are any number in the range 0 to 2000. If 0 is specified, all records assigned to this output group are discarded.

***NOTE***

If SQL Explorer is the only product that you are installing, the data space size will be one megabyte.

**D** Press **F3** (End) to return to the Output Group Definition panel.

## Check or Modify the DOMBCOPY JCL

The Data Collector submits a batch job to create an archive of a trace data set when any of the following conditions occur:

- A trace data set is full.
- The Data Collector is shut down.
- The SWITCH command is issued.

These data sets can be used to create the batch reports described in the *ACTIVITY MONITOR for DB2 Reference Manual* and the *APPTUNE for DB2 User Guide*.

***NOTE***

Batch reporting as described in this section does not apply to Pool Advisor or SQL Explorer. If Pool Advisor and SQL Explorer are the only products you are installing, proceed to page 112.

If you want archived copies of the trace data sets, modify the JOB statement, the STEPLIB DD statement, and the COPYOUT DD statement in the DOMBCOPY JCL in accordance with the standards at your site.

If you want archived data sets to be listed in the archive directory, you must specify the $DOMPLX and $DOMARC substitution symbols in the data set name in your copy job JCL.

If you are migrating from a previous release, you might need to change the name of the DOMBCOPY data set to the new data set name. You can change the data set name from the Administration function. See "Check the Values in the DOMPLEX Profile" on page 95 for more information.

The DOMBCOPY JCL can be found in the #DOMCOPY member of the CNTL data set (see Figure 19). If you are using a security package such as RACF, you might need to grant job submission authority to the product.

**Figure 19 DOMBCOPY JCL**

```
//COPY     EXEC PGM=DOMBCOPY,PARM='DC=$DOMSSN,DP=$DOMPLX'
//*
//STEPLIB  DD DISP=SHR,DSN=DOM.V3R2M01.LOAD
//SYSPRINT DD SYSOUT=*
//DOMBARC  DD DISP=SHR,DSN=$DOMARC
//COPYOUT  DD DISP=(NEW,CATLG),UNIT=SYSDA,
//       SPACE=(CYL,(10,10)),
//       DCB=(RECFM=VBS,LRECL=32756,BLKSIZE=4096),
//       DSN=$DOMSSN.COPY.$DOMDATE.$DOMTIME.W$DOMWOG
```

The following substitution symbols are provided by the System and SQL Performance products for use in the copy job JCL. The product replaces the symbols with the appropriate values when the job is submitted for execution.

| Symbol | Substituted Value |
|---|---|
| $DOMSSN | current Data Collector subsystem ID (optional) |
| $DOMDSN | current trace data set name |
| $DOMDATE | current date in the format Dyyddd, where yy is the year (00–99) and ddd is the day of the year (000–365) (optional) |
| $DOMTIME | current time in the format TMhhmmss where hh is hours (00–23), mm is minutes (00–59), and ss is seconds (00–59) (optional) |
| $DOMWOG | current output group defined to the trace data set (optional)[a] |
| $DOMPLX | current DOMPLEX name (specified on the PARM parameter of the EXEC statement)[b] |
| $DOMARC | archive directory for the current DOMPLEX (specified in the //DOMBARC DD statement)[b] |

[a]This symbol must be prefixed with a letter because the substituted value is a number (W$DOMWOG, for example).

[b]These values must be specified if you want the archived data sets to be listed in the archive directory.

You can specify substrings for the substitution symbols to tailor the values to
`$SUBSTR(SS,LL,VVVVVVVV)`

where:

| | | |
|---|---|---|
| SS | = | starting position (a value between 1 and the length of the substitution symbol) |
| LL | = | length [a value between 1 and (length of symbol plus 1 minus SS)] |
| VVVVVVVV | = | substitution symbol |

For example, `$SUBSTR(1,10,$DOMDSN)` would represent the first 10 characters of the current trace data set name (`$DOMDSN`). The following JCL example illustrates a possible use of this substring:

```
//COPYOUT  DD DISP=(NEW,CATLG),UNIT=SYSDA,
//         SPACE=(CYL,(10,10)),
//         DCB=(RECFM=VBS,LRECL=32756,BLKSIZE=4096),
//         DSN=$DOMSSN.$SUBSTR(1,10,$DOMDSN).$DOMDATE.$DOMTIME
```

If you submit the copy job manually, you must either remove the substitution symbols or replace them with appropriate values. Make a separate copy of #DOMCOPY to use for manual submissions so the substitution symbols are not lost.

# Verify or Allocate the Trace Data Sets

***NOTE***

If SQL Explorer is the only product you are installing, there will be only one trace data set for the collection of DCSYSTEM records. If you allocate additional data sets, SQL Explorer will ignore them.

No DB2 traces are started for a SQL Explorer-only installation.

One or more unique trace data sets must be allocated for each output group if you want to save the records captured.

***TIP***

The sizes of the trace data sets depend on many factors. The System and SQL Performance products provide flexible options for the storage of trace data. You can create data sets for the storage of trace data for specific DB2s or for different combinations of specific data across any number of DB2s. The Installation Assistant component that is shipped with the products is designed to determine the best configuration based on the volume of work at your site. BMC Software recommends that you use the Installation Assistant to create the appropriate output groups and trace data sets. If you find that circumstances have changed or your estimates need adjustment, you can modify the values in the output groups later.

To verify or allocate trace data sets, follow these steps:

1 Select option **4** from the Output Group Definition menu.

The Output Group Data Sets panel (Figure 20) is displayed.

**Figure 20 Output Group Data Sets Panel**

```
DOMESP34/P                Output Group Data Sets                  LINE 0 OF 0
Command ====> ____________________________________________________ Scroll ===> CSR_

Output group : O1                          DOMPLEX name : DC01PLEX
To add a trace data set, type the name in the "New trace data set" field.
Action codes:    A -Allocate     D -Delete     R -Remove

 New trace data set  ____________________________________________

                                                      Size
Act  Data set name                                    cyls    Status
---  ------------------------------------------------ ----    ----------
```

The trace data sets allocated by the Installation Assistant for this output group are listed on the Output Group Data Sets panel.

You can use this panel to allocate and format as many as 16 pairs of VSAM data sets to be used by the output group to store trace data.

2 To allocate a new trace data set, type the trace data set name in the **New trace data set** field by using standard MVS naming conventions and a maximum of 39 characters for the data set name.

The following data sets are allocated:

- One data set that contains the trace records. The suffix *.DATA* is added to the data set name you specify.
- Another data set that contains the index entries used to keep track of the trace data. The suffix *.RBAT* (relative byte address table) is added to the data set name you specify.

3 Press **Enter**.

The Output Group Data Set Allocate panel (Figure 21) is displayed.

**Figure 21 Output Group Data Set Allocate Panel**

```
DOMESPTA/P              Output Group Data Set Allocate                 07:51:07
Command ====> ____________________________________________________________

Output Group : 01                              DOMPLEX name : DC01PLEX

Specify the appropriate information to complete the allocation request.

 Trace data set name  . . . RDHDXJ.TRCACCT.OG01.DATA_____________________
 Trace data set index name. RDHDXJ.TRCACCT.OG01.RBAT_____________________
 Space (total)  . . . . . . ____      (Cylinders, recommended minimum=100)
 Volume serial  . . . . . . ______    (For SMS, "*" or blanks are allowed)
 Storage class  . . . . . . ________  (SMS-managed allocation,blanks permitted)

Select one of the following options.  Then press Enter.

_ 1. Allocate the data sets
  2. Cancel the request




  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap      F10=Left     F11=Right    F12=Cancel
```

4 Use the Output Group Data Set Allocate panel to verify or change the values that are listed in Table 18 on page 114.

**Table 18 Fields and Descriptions for the Output Group Data Set Allocate Panel**

| Field | Description |
|---|---|
| **Space (total)** | The total number of cylinders to be allocated. Most of the space specified is allocated to the trace (DATA) data set, and a small percentage is allocated to the index (RBAT) data set.<br><br>**Tip**: When allocating trace data sets without the help of the Installation Assistant, take into consideration the number of DB2s and the volume of trace data generated. The trace data sets should be large enough to hold all data generated in a 24-hour period. |
| **Volume serial** | The DASD VOLSER. If you are using SMS, this field can be left blank. |
| **Storage class** | The SMS storage class, if you are using SMS. If you are not using SMS, leave this field blank. |

5 Select option **1** to execute the IDCAMS DEFINE command.

The resulting messages (Figure 22) are displayed.

**Figure 22 Output from IDCAMS Define Operation**

```
DOMEBRSN/P                                                    LINE 1 OF 34
Command ====>                                               Scroll ===>


IDCAMS  SYSTEM SERVICES                                       TIME: 16:03:2

 DEFINE CLUSTER(  -
 NAME(RDHDXJ.TRCACCT.OG01.DATA                    )  -
 VOL( DEV090) /* STORCLAS(        ) */ -
 CYL(    4) -
 FSPC(0 0) -
 SHR(3 3) -
 CISZ(4096) RECSZ(4089 4089) -
 BUFSP(98304) -
 NIXD SPEED NWCK NERAS RUS ) -
 DATA( -
 NAME(RDHDXJ.TRCACCT.OG01.DATAD                   ) )
IDC0508I DATA ALLOCATION STATUS FOR VOLUME DEV090 IS 0
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

IDC0002I IDCAMS PROCESSING COMPLETE. MAXIMUM CONDITION CODE WAS 0
IDCAMS  SYSTEM SERVICES                                       TIME: 16:03:2
  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

6 Press **F3** to exit and redisplay the Output Groups Data Sets panel (Figure 20 on page 112).

7 Repeat the allocation procedure ("Verify or Allocate the Trace Data Sets" on page 112) for each trace data set you want to allocate.

8 Press **F3** to return to the Output Group Definition menu.

DOMPLEX Profile verification is now complete.

9 Press **F3** until you return to the DOMPLEX Profile Administration panel.

If you modified a DOMPLEX Profile, a confirmation panel is displayed first to verify your changes.

10 Type 1 to save your changes and press **Enter**.

11 Press **F3** again to exit the current panel.

The Administration menu (Figure 8 on page 95) is displayed.

# Verify or Change the Global Options Settings

This task is required for a new product installation. It is optional for a migration installation.

The global options are parameters that affect all users and procedures using the same STATUS VSAM data set.

1 Select option **4** on the Administration menu and press **Enter**.

The Global Options panel (Figure 23) is displayed.

**Figure 23 Global Options Panel**

```
DOMESIP1/P                    Global Options                          09:18:59
Command ====> ____________________________________________________________

The following are global parameters that affect all users and procedures
using the same STATUS VSAM data set.
 Would you like to change these values now?  . . . N     (Y=Yes, N=No)

Enforce security via DB2 authorization table . . : N     (Y=Yes, N=No)
Authorized for DB2 commands. . . . . . . . . . . : Y     (Y=Yes, N=No)
Authorized for MVS commands. . . . . . . . . . . : Y     (Y=Yes, N=No)
Set Data Collector userid from procedure name    : N     (Y=Yes, N=No)
Use hiperspaces for report record staging  . . . : Y     (Y=Yes, N=No)
Translate all panels to upper case . . . . . . . : N     (Y=Yes, N=No)
Site panel language identifier . . . . . . . . . : E     (E=English,J=Japanese)
Site date formatting style option  . . . . . . . : U     (U=USA,E=Europe,I=ISO)
Site decimal formatting style option . . . . . . : U     (U=USA,E=Europe)
Site IDCAMS module name  . . . . . . . . . . . . : IDCAMS
Site work file DASD unit name  . . . . . . . . . : SYSALLDA
Last changed on  2000-05-12 17:58:08  by user  JKB3     .



  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

2 Use the Global Options panel to verify or change the values that are listed in Table 19.

**Table 19 Fields and Descriptions for the Global Options Panel (Part 1 of 2)**

| Field | Description |
|---|---|
| **Enforce security via DB2 authorization table**<br><br>ACTIVITY MONITOR<br>APPTUNE<br>Application Performance | Indicates whether the product uses the DB2 user authorization table (SYSUSERAUTH) to enforce security for DB2 commands and traces requested by product users. The following values are valid:<br><br>**Y** The product examines the DB2 authorization table.<br><br>**N** The product does not examine the DB2 authorization table. Authorization checking takes place only in the product. This is the default. |
| **Authorized for DB2 commands**<br><br>ACTIVITY MONITOR<br>APPTUNE<br>Application Performance | Indicates whether any users of the product will be allowed to issue commands to DB2 from the product. The following values are valid:<br><br>**Y** Users who also have DB2 command authority in their User Profiles will be allowed to issue commands to DB2 from the product. This is the default.<br><br>**N** No users will be allowed to issue commands to DB2 from the product, regardless of the setting in their User Profiles. |
| **Authorized for MVS commands**<br><br>ACTIVITY MONITOR<br>APPTUNE<br>Application Performance | Indicates whether any users of the product will be allowed to issue commands to MVS from the product. The following values are valid:<br><br>**Y** Users who also have MVS command authority in their User Profiles will be allowed to issue commands to MVS from the product. This is the default.<br><br>**N** No users will be allowed to issue commands to MVS from the product, regardless of the setting in their User Profiles. |
| **Set Data Collector userid from procedure name** | Indicates whether the Data Collector procedure name is used as the Data Collector AUTHID. The following values are valid:<br><br>**N** Do not use the Data Collector procedure name as the Data Collector AUTHID. The default system-assigned AUTHID is not changed. This is the default.<br><br>**Y** Use the Data Collector procedure name as the Data Collector AUTHID. This option provides a means of assigning an authorization ID to a started task when there is no security system on MVS. This value is ignored if there is a security system on MVS. |
| **Use hiperspaces for report record staging** | Indicates whether hiperspaces can be used to stage records during the report viewing process. Use of hiperspaces can improve performance by using expanded and auxiliary storage (page data sets) instead of temporary data sets. Performance is improved if the data input to the report does not fit into the user's report data file buffers. Hiperspaces are available only in MVS/ESA (SP 3.0 or above). The following values are valid:<br><br>**Y** Use hiperspaces to stage records if the product is running on an MVS/ESA system. This is the default.<br><br>**N** Do not use hiperspaces to stage records. Stage report records in temporary data sets. |

**Table 19 Fields and Descriptions for the Global Options Panel (Part 2 of 2)**

| Field | Description |
|---|---|
| **Translate all panels to upper case** | **Note:** This field does not apply to SQL Explorer-specific reports and panels or Explain reports. It does apply to panels shared by SQL Explorer with other System and SQL Performance products.<br><br>Indicates whether all reports and panels are to be converted to uppercase characters before they are displayed. The following values are valid:<br><br>**Y** Convert all reports and panels to uppercase characters.<br>**N** Do not convert all reports and panels to uppercase characters. This is the default. |
| **Site panel language identifier** | Indicates the language used on performance product panels. This field acts as the default for all users who do not set a preference in User Options or the User Profile. The following values are valid:<br><br>**E** English is used. This is the default.<br>**J** Japanese is used.<br>**user-defined**<br>Set this value to translate panels to the language you specify. |
| **Site date formatting style option** | Indicates the style of date displayed on panels where the date occurs. The following values are valid:<br><br>**U** Displays dates in United States format (*mm/dd/yyyy*). This is the default.<br>**E** Displays dates in European format (*dd/mm/yyyy*).<br>I Displays dates in the ISO format (*yyyy/mm/dd*). |
| **Site decimal formatting style option** | Indicates the symbol used to the left of the fractional portion of a number with decimal places. The following values are valid:<br><br>**U** Use a period (.) as the decimal separator (United States format). This is the default.<br>**E** Use a comma (,) as the decimal separator (European format). |
| **Site IDCAMS module name** | Indicates the name of the IDCAMS module. The IBM default name is IDCAMS. If the default at your site is different, you must specify it during installation. |
| **Site work file DASD unit name** | Indicates the unit name to be used for allocating temporary DASD work files. The IBM default unit name is SYSDA. If the default at your site is different, it must be specified during installation. |

3 Press **F3** to exit the Global Options panel.

The Administration menu (Figure 8 on page 95) is displayed.

# Check the Default User Profile

This task is required.

User Profiles define the operating characteristics for a product session, including the authorizations granted to individual users. To make the job of administration easier, the product automatically generates a User Profile the first time a user tries to sign on by copying the default User Profile loaded during installation (called 9DEFAULT).

If you do not want to create User Profiles automatically, delete the 9DEFAULT profile. When there is no 9DEFAULT profile, access is denied to new users until an administrator creates User Profiles for them.

***WARNING***

Ensure that your User Profile has maximum authority before deleting the 9DEFAULT profile.

If you intend to access ACTIVITY MONITOR by using the VTAM Router, you also need to create a VTAM Router Profile before deleting the 9DEFAULT profile.

Before making the product available to multiple users in your environment, check the authorizations in the 9DEFAULT profile to make sure they are consistent with the security strategy at your site. User Profiles are discussed in detail in the *System and SQL Performance Products for DB2 Administrator Guide*.

Extensive online Help exists for all panels and their associated fields. If you press **F1** while the cursor is positioned on a text-only area of a panel, a description of that panel is displayed. If you press **F1** while the cursor is positioned on an input or output field on a panel, specific information about that field is displayed.

To view and modify User Profile values, follow these steps:

1 **S**elect option **1** (User Profiles) from the Administration menu.

The User Profile Administration panel (Figure 24 on page 119) is displayed.

**Figure 24 User Profile Administration Panel**

```
DOMEPRFU/P              User Profile Administration           LINE 195 OF 196
Command ====> _____________________________________________ Scroll ===> CSR_


To add a profile, type the name in the "New profile" field, and/or type one
or more action codes.  Then press Enter.
  V -View       M -Modify     D -Delete     C -Copy

 New profile   ________

Act Name      Description                      Last change date    Changed by
--- --------  -------------------------------  ------------------  ----------
_   USER01    DEFAULT PROFILE                  1998-10-14 07:58    RDHDXJ3
_   9DEFAULT  DEFAULT PROFILE                  1998-10-08 11:03    BMCSftwr









  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

**2** Move the cursor to the **Act** field beside the 9DEFAULT entry. Type **M** (Modify) and press **Enter.**

The User Profile Data Menu (Figure 25 on page 120) is displayed.

**Figure 25 User Profile Data Menu**

```
DOMEUPRO/P                 User Profile Data Menu                  13:55:18
Command ====> ____________________________________________________________

User name : 9DEFAULT

Type an optional description for this user in the field below.
 Description  DEFAULT_PROFILE_______________

Select one of the following options.  Then press Enter.

_ A. Authorization          - Display authorization values that can be set
                              only by an administrator.
  1. Session Control        - Parameters that control the user's session
  2. Start Options          - Parameters that affect session startup

The following values cannot be locked from user update.
  3. Session Options        - Parameters that customize the session
  4. Presentation Options   - Parameters that control language and formatting
  5. Function Keys          - Function key values
  6. Customization User IDs - Search order and default user ID for customized
                              objects
  7. Grantee User IDs       - Users allowed to modify items owned by 9DEFAULT
  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

**3** Review each option on this panel carefully, especially option **A** (Authorizations) and option **1** (Session Control).

- **Authorizations** (option A) displays authorization values that can be set only by an administrator:

  — Data Collector access
  — DB2 access
  — Report or menu access (ACTIVITY MONITOR only)
  — Customization owner access (ACTIVITY MONITOR only)

- **Session Control** (option 1) is used to set the parameters that control access to product functions and limit resource use.

- **Start Options** (option 2) (ACTIVITY MONITOR only) is used to set the parameters that affect the user's session at startup time (for example, the initial panel displayed).

- **Session Options** (option 3) is used to set characteristics for the user's session (for example, placement of **Command** line and display of panel ID).

- **Presentation Options** (option 4) is used to set the parameters that control the presentation of data on your screen (for example, upper- or mixed-case, date style, and decimal style).

- **Function Keys** (option 5) is used to set function key defaults.

- **ACTIVITY MONITOR only**
  **Customization User IDs** (option 6) is used to assign a default owner for customized objects and to specify the search order for retrieving customized objects for this user (for example, qualifier lists).
- **ACTIVITY MONITOR only**
  **Grantee User IDs** (option 7) is used to specify the user IDs that can create, modify, or delete customized objects using this user ID as the owner.

4 Press **F3** to exit the User Profile Data Menu.

A confirmation panel is displayed.

5 Select option **1** to save your changes.

6 Press **F3** until the main menu is displayed. Leave your product session active.

# Install the VTAM Router

***NOTE***

This section applies only to ACTIVITY MONITOR customers who want to access ACTIVITY MONITOR without the use of TSO or ISPF. If you are installing ACTIVITY MONITOR with one or more other System and SQL Performance products, all installed products will be accessible using the VTAM Router.

If you are not an ACTIVITY MONITOR customer or you do not want to use the VTAM Router, proceed to "Start the Data Collector" on page 142.

This task is optional.

Most ACTIVITY MONITOR users access the Report Manager through an ISPF menu or CLIST. However, some companies that monitor DB2 across multiple sites might be concerned with the overhead of running TSO/ISPF on production machines or cannot support multiple TSO sessions across the network. These sites need the ability to switch easily between monitors for remote systems from a single terminal.

ACTIVITY MONITOR solves this problem with a powerful feature: the ability to display panels without the use of TSO or ISPF. When selected as an option during installation, the VTAM Router application is started automatically by the Data Collector subsystem when both of the following conditions are true:

- The VTAM APPLID is specified in the DOMPLEX Profile.
- The procedure name is specified correctly in the VTAM Router Profile.

Users can log on directly to the VTAM Router APPLID and can perform all of the functions available to users under ISPF. Using VTAM instead of ISPF provides the following advantages:

- You can monitor remote DB2 systems by using VTAM across the domain.
- All users are serviced by a single MVS address space (unlike TSO, which requires one region per user).
- A single MVS address space can access all active ACTIVITY MONITOR subsystems on the same CPU.

***NOTE***

ACTIVITY MONITOR requires VTAM version 2 or later. The use of secondary AUTHIDs is not supported by the VTAM Router.

The Explain function is not supported by the VTAM Router.

## VTAM Support Security Considerations

The VTAM Router can be run as a batch job or as a started task. For best results, run the VTAM Router as a started task.

The VTAM Router user ID is assigned differently, depending on whether the Router is run as a batch job or as a started task.

| Method | VTAM Router User ID Assignment |
|---|---|
| Batch Job | The user ID is assigned by the USER parameter of the job statement. |
| Started Task | The user ID is assigned by your MVS security system, based on entries in the equivalent of RACF's ICHRIN03 table. This table contains the name of the started task procedure and the user ID assigned to it. |

Sites frequently allow the security system to assign a default user ID to started tasks so that started tasks can be added without requiring an update to ICHRIN03. If this is the case at your site, grant this default started task user ID the necessary authorizations. If you do not want ACTIVITY MONITOR to use this default user ID, you must modify ICHRIN03 to assign a different user ID to the Data Collector.

***NOTE***

If you make changes to ICHRIN03, an IPL is required to put them into effect.

### RACF Requirements

Table 20 lists access authorizations to the VTAM Router data sets.

**Table 20 VTAM Router Access to ACTIVITY MONITOR Data Sets**

| Component | PROFILE | SECURITY | STATUS | CUSTOM | HELP | TRACE | COPYDIR | HISTORY[a] | VARIABLES[a] | PARMLIB[a] | TEMPLATE[a] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RACF | U | R | U | R | R | R | U | R | R | R | R |
| ACF2 | W | R | W | R | R | R | W | R | R | R | R |

Legend:

R = READ
W = WRITE
U = UPDATE

[a]These data sets are used by Pool Advisor only. They are relevant in the VTAM Router environment only if you are running ACTIVITY MONITOR and Pool Advisor together under the VTAM Router.

With RACF version 1.9 or later, VTAM Router users run under their own authority and the authorizations listed in Table 20 are sufficient. With RACF versions earlier than 1.9, the VTAM Router's user ID must have authority equivalent to the highest authority required for any user of the Router.

### ACF2 Requirements

If you are using ACF2, you must create a SAF protect record to handle the RACF RACROUTE VERIFY command issued in the VTAM exit provided by ACTIVITY MONITOR (DOMEXIT5). Create the record by issuing the following command through the ACF2 TSO interface:

```
GSO SAFPROT CLASSES(VERIFY)-
SUBSYS(DOMEXIT5) -
CONTROLPOINTS(DOMEXIT5)
```

Add a LOGON ID record to ACF2 for the VTAM Router started task, with the MUSASS flag turned on to indicate that it is a multi-user address space.

### Top Secret Requirements

If you are using Top Secret to control user access to DB2, you must update the Facilities Matrix table to identify the ACTIVITY MONITOR program name. If the program name is not in the table, Top Secret does not allow a program to issue RACROUTE calls. You can specify the first three characters of the program name in the Facilities Matrix table. For ACTIVITY MONITOR, the first three characters are *DOM*. These characters act as a wildcard (DOM*, for example), allowing any program beginning with the characters DOM to issue RACROUTE calls.

You also must specify the following information in the Facilities Matrix table for your VTAM Router:

```
FAC(USERXX=NAME=AMFORDB2) xx=1-77
FAC(AMFORDB2=PGM=DOM)
```

## Sort Considerations

The VTAM Router shares virtual storage among all users logged on to the Router. ACTIVITY MONITOR monitors each user's storage use allocated by the Router so usage does not exceed the limit specified in the Router profile definition; however, use of storage by a SORT program is external to this limit.

If you are using SYNCSORT as your sort program, the installation parameters defined during SYNCSORT installation determine the Router's use of virtual storage.

If the Router invokes SYNCSORT when reports are being displayed, installation parameters such as VSCORET and VSM determine the use of virtual storage by SYNCSORT. If SYNCSORT uses an excessive amount of storage to optimize the sort function, the amount of storage available to ACTIVITY MONITOR tasks can be limited. If the amount of storage available to ACTIVITY MONITOR tasks is limited, the VTAM Router could terminate because of a lack of storage.

To avoid termination of the VTAM Router, perform one of the following steps:

- Specify `REGION=0M` in the JCL for the VTAM Router. Specifying this amount will not limit the amount of storage available to the Router address space.
- Specify a data set with the following contents in the //$ORTPARM DD statement in the VTAM Router JCL:

  `VSCORET=`*`xxxx`*`K,DSM=OFF`

  where *xxxx*K is the amount of virtual storage the sort program should use.

SYNCSORT also uses the amount of below-the-line storage defined during SYNCSORT installation. If the VTAM Router is sharing below-the-line storage among Router users, a lack of LSQA storage can result if different users simultaneously invoke SYNCSORT.

To avoid a lack of LSQA storage, BMC Software recommends that you limit the amount of below-the-line storage used by SYNCSORT by specifying 250K in the Min Core parm during SYNCSORT installation and specifying `VSCORE=500K` in the //$ORTPARM DD statement in the VTAM Router JCL.

## Installing the VTAM Router

Table 21 summarizes the steps that are required for installing the VTAM Router.

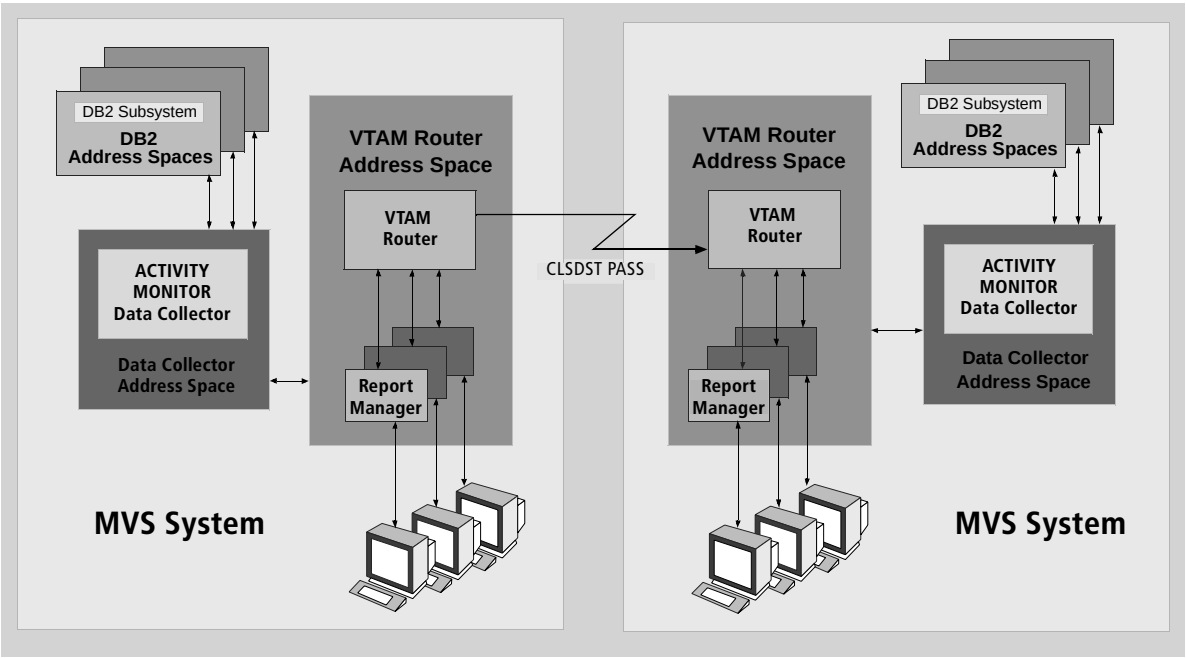
**Table 21 VTAM Router Installation Step Summary**

| Description | Full Install | Maintenance Install |
|---|---|---|
| 1. Define the ACTIVITY MONITOR VTAM APPL | required | NA |
| 2. Install the VTAM JCL procedure | required | optional |
| 3. Modify ACTIVITY MONITOR for VTAM | required | optional |
| 4. Verify the global resource enqueue | optional | optional |
| 5. Activate the ACTIVITY MONITOR VTAM Router | required | optional |
| 6. Log on to ACTIVITY MONITOR from VTAM | required | NA |

Steps 1, 2, 3, and 5 must be executed once for every VTAM APPLID on each MVS system where ACTIVITY MONITOR runs. Only one VTAM Router PROC is normally started for each MVS system. Multiple users can monitor any DB2 running on a specific MVS system by logging on to the ACTIVITY MONITOR application running on that system.

The relationship between DB2 users, ACTIVITY MONITOR users, VTAM Router users, and Report Manager users is shown in Figure 26 on page 126.

**Figure 26 VTAM Router Communication**




***NOTE***

The VTAM Router must run the same release level of ACTIVITY MONITOR as the Data Collector. You cannot access an ACTIVITY MONITOR version 4.1 Data Collector unless the session is passed to an ACTIVITY MONITOR version 4.1 VTAM Router. Nor can you access an ACTIVITY MONITOR version 4.0 Data Collector unless the session is passed to an ACTIVITY MONITOR version 4.0 VTAM Router.

To install the VTAM Router, follow these steps:

**1** Define the ACTIVITY MONITOR VTAM APPL.

This step is required for a full installation.

To access VTAM, an application must be defined to VTAM with an APPL definition. This definition must be placed in SYS1.VTAMLST or other VTAM definition library used at your site. If you do not have the authorization to modify this library, contact your VTAM system programmer.

To complete this installation step, follow these directions:

**A Create an** APPL **member.**

Invoke ISPF EDIT to create an APPL member (for example, APPLDOM) in the SYS1.VTAMLST data set. You need only one APPL for each MVS system where a Data Collector runs. Insert the following statements:

```
APPLDOM  VBUILD TYPE=APPL
AMAPPL   APPL AUTH=(ACQ,PASS),ACBNAME=AMAPPL
```

Contact your VTAM system programmer to ensure that you use the correct MODETAB, USSTAB, and DLOGMOD tables for your installation. For a discussion of these tables, with sample MODETAB values for 3270 devices, see "VTAM Table Considerations" on page 136.

**B** **Create a** CDRSC **definition for each VTAM domain.**

***Optional***. If you are installing VTAM support across multiple VTAM domains, you might need a VTAM Cross-Domain Resource (CDRSC) definition in each domain from which the APPL can be accessed. Invoke ISPF EDIT to create a CDRSC member (for example, CDRSDOM) in the SYS1.VTAMLST data set on each domain's system, and insert the following statements:

```
CDRSDOM  VBUILD  TYPE=CDRSC
AMAPPL   CDRSC   CDRM=M11
```

Your VTAM system programmer can help you determine whether you need this definition and can help you create it.

**2** Install the VTAM JCL procedure.

This step is required for a new product installation. It is optional for a migration installation.

The JCL for the VTAM Router PROC is contained in the DOMVTAM member of the CNTL data set. This PROC is started automatically by ACTIVITY MONITOR when its name is specified in a VTAM Router Profile, and the APPLID is specified in the DOMPLEX Profile.

To complete this installation step, follow these directions:

**A** **Modify the JCL in** CNTL (DOMVTAM)**.**

As a multi-user address space, the VTAM Router's dispatching priority must be slightly higher than normal TSO users.

The Report Manager uses the DYNALLOC option for SORT. If your installation parameters for SORT do not allow dynamic allocation of sort work files, include sort work DD statements in DOMCLIST and the VTAM Router started task. The VTAM Router requires separate sort work DD statements for each user (U001WKnn for user 1, U002WKnn for user 2, U003WKnn for user 3, and so on, where nn is the number of the sort work file). See your system Sort utility documentation for more information about coding sort work DD statements.

**B** **Install the** DOMVTAM PROC**.**

The DOMVTAM PROC can be installed as a started task or a batch job.

To install DOMVTAM as a started task, copy the modified DOMVTAM PROC JCL into your SYS1.PROCLIB or equivalent stored procedure library.

To install DOMVTAM as a batch job, follow these steps:

1. Edit a data set to use for submitting the ACTIVITY MONITOR VTAM JCL.
2. Create a job statement that meets your site requirements.
3. Copy the modified DOMVTAM PROC JCL into the data set after the JOB statement.
4. Press **F3** (End) to save the data set.

**3 Modify ACTIVITY MONITOR for VTAM.**

The DOMPLEX Profile must be modified to specify the ACTIVITY MONITOR VTAM APPLID, and a VTAM Router Profile must be created. A sample VTAM Router Profile (AMAPPL) was unloaded during installation.

To complete this installation step, follow these directions:

**A** Navigate to the DOMPLEX Profile Administration panel.

Select The Administration option from the current product or solution main menu, then select option **2** (DOMPLEX Profiles). The DOMPLEX Profile Administration panel is displayed.

**B** Select the DOMPLEX.

Type **M** beside the DOMPLEX name to be modified. The DOMPLEX Profile Menu is displayed.

**C** Select option **1** (Data Collector List).

The DOMPLEX Data Collector List panel (Figure 27 on page 129) is displayed.

**Figure 27 DOMPLEX Data Collector List Panel**

```
DOMESPR1/P             DOMPLEX Data Collector List                LINE 1 OF 1
Command ====> _____________________________________________ Scroll ===> CSR_


DOMPLEX name : DXJ2

To add an entry, type the subsystem ID in the "New Data Collector" field, and
optionally type one or more action codes.  Then press Enter.
  S -Select        D -Delete        C -Copy

 New Data Collector   ____     (subsystem ID)

Act     DC SSID
---     -------
 _        DOM2




  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

**D** Select the Data Collector to be modified.

The Data Collector Control Options panel (Figure 28) is displayed.

**Figure 28 Data Collector Control Options Panel**

```
DOMESP10/P              Data Collector Control Options                11:45:02
Command ====> ____________________________________________________________

Data Collector name : DOM2                  DOMPLEX name : DXJ2

Specify the following subsystem initialization controls.  Then Exit.

 Maximum number of concurrent online users . . _99       (1-999)
 Maximum number of concurrent batch users  . . __1       (0-999)
 WTO messages route code . . . . . . . . . . . _0        (0-16)
 WTO upon user connection  . . . . . . . . . . Y         (Y=Yes,N=No)
 WTO upon user connect termination . . . . . . Y         (Y=Yes,N=No)
 Maximum DB2 log messages retained online  . . _500      (1-9999) .1k ECSA each
 XBM cache statistics interval . . . . . . . . __60      (0-1440 minutes)
 VTAM Router profile (APPLID)  . . . . . . . . ________
 Exception Facility PROC to be started . . . . DOMXCEP_




  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

**E Specify the VTAM APPLID.**

Specify the VTAM APPLID in the **VTAM Router profile (APPLID)** field. The APPLID is the ACBNAME on the APPL statement created in step 1 on page 126. This field specifies the VTAM Router Profile that will be started automatically by this Data Collector during ACTIVITY MONITOR initialization. If you leave this field blank, the VTAM Router will not be started automatically.

You can start the VTAM Router manually as an MVS started task or as a batch job. Running the VTAM Router as a batch job is not recommended.

**F Create or modify the VTAM Router Profile.**

Press **F3** until the Administration menu is displayed. Select option **3** (VTAM Router Profiles).

The VTAM Router Profile Administration panel (Figure 29) is displayed.

**Figure 29 VTAM Router Profile Administration Panel**

```
DOMEPRFV/P            VTAM Router Profile Administration          LINE 1 OF 2
Command ====> _____________________________________________ Scroll ===> CSR_


To add a profile, type the name in the "New profile" field, and/or type one
or more action codes.  Then press Enter.
  V -View       M -Modify     D -Delete     C -Copy

 New profile   ________

Act Name      Description                      Last change date    Changed by
--- --------  -------------------------------  ------------------  ----------
_   AMAPPL    SAMPLE AM VTAM ROUTER APPLID     1998-08-18 11:13    BMCSftwr









  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

**G** Type **M** in the **Act** field beside the sample AMAPPL VTAM Router Profile to modify the profile, or create a new profile for your APPLID by typing the name of the APPLID in the **New profile** field, and pressing **Enter**.

The VTAM Router Profile Definition panel (Figure 30) is displayed.

**Figure 30 VTAM Router Profile Definition Panel**

```
DOMEVPRO/P              VTAM Router Profile Definition              11:48:23
Command ====> ____________________________________________________________


Router name (appl) : AMAPPL

Specify the following information to define this VTAM Router.  Then Exit.

 Description  . . . . . . . . . . . . . SAMPLE_AM_VTAM_ROUTER_APPLID__
 PROC name to start router  . . . . . . AMVTAM__
 Execute router non-swappable . . . . . Y           (Y=Yes,N=No)
 Maximum number of concurrent users   _4            (1-99)
 User virtual storage usage limit . . 32            (4-99 MB)









  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

**H** Use the VTAM Router Profile Definition panel to verify or change the values that are listed in Table 22.

**Table 22 Fields and Descriptions for the VTAM Router Profile Definition Panel**

| Field | Description |
|---|---|
| **PROC name to start router** | Type the name of the JCL procedure for starting the VTAM Router created in 2 on page -129. This procedure will be started automatically by the Data Collector during ACTIVITY MONITOR initialization if the name of this VTAM Router Profile is specified in the **VTAM Router Profile (APPLID)** field of the Data Collector Control Options panel (see page 129).<br><br>**Note**: When the Data Collector starts the procedure automatically, the step name used consists of the Data Collector subsystem ID followed by *VT* (DC01VT, for example). |
| **Execute router non-swappable** | Type **Y** or **N** to indicate whether the VTAM Router address space executes with the MVS non-swappable attribute. |
| **Maximum number of concurrent users** | Specify the maximum number of VTAM users that can be connected to this VTAM Router at the same time. |
| **User virtual storage usage limit** | Specify the maximum amount of virtual storage that can be used by each VTAM Router user. |

I Press **F3** to save the profile just created.

The VTAM Router Profile Administration panel is displayed.

J **Repeat step 3 for each** APPLID **you want to define.**

If you are installing VTAM support across multiple domains and you are not sharing the ACTIVITY MONITOR STATUS data set, you must add a VTAM Router Profile entry for each remote VTAM Router.

**4** Verify the global resource enqueue.

Required if you have a shared-DASD environment and use a global resource manager such as GRS. ACTIVITY MONITOR uses predominantly SYSTEMS enqueues with resource names prefixed by AMforDB2.

**5** Activate the ACTIVITY MONITOR VTAM Router.

The VTAM Router executes as a separate MVS address space from the Data Collector subsystem or TSO/ISPF users. The VTAM Router can run as a started task or a batch job, depending upon how the DOMVTAM PROC was installed (see 2 on page -129).

Before the VTAM Router can accept user logon requests, the APPLID specified in step 2 on page 127 must be made ACTIVE to VTAM. Then the DOMVTAM PROC's JCL can be executed to activate the VTAM Router.

To activate the ACTIVITY MONITOR VTAM Router, follow these steps:

A Issue the following MVS command from an MVS operator console on the system where the Data Collector will run:

```
V NET,ACT,ID=APPLDOM
```

B Ensure that VTAM has activated the APPL by issuing the following MVS command:

```
D NET,ID=APPLDOM,E
```

VTAM should respond with messages indicating the status of the AMAPPL. Major node APPLDOM should be ACTIVE. AMAPPL will remain CONCT until DOMVTAM is started. When DOMVTAM starts and is accepting logons, the AMAPPL will change to ACT/S (if a user is in session) or ACTIVE (if no users are in session). If this status is not ACTIVE, the APPL may be defined improperly. Contact your VTAM systems programmer for assistance.

C If the VTAM Router was installed to run as a batch job, submit the DOMVTAM JCL created in step 2 on page 127.

If the JCL was installed to run as a started task, the DOMVTAM PROC can be started automatically when the Data Collector subsystem begins execution if the VTAM Router Profile name was specified in the DOMPLEX Profile (see 3 on page -130).

***NOTE***

When the Data Collector starts the procedure automatically, the step name used consists of the Data Collector subsystem ID followed by VT (DC01VT, for example).

**D** To stop all VTAM sessions, use the MVS STOP command in one of the following formats:

```
P jobname.stepname
```

or

```
P procname.stepname
```

For example, `P DOMVTAM.DOM1VT`

***NOTE***

The VTAM Router does not terminate when the Data Collector is terminated.

**6** Log on to ACTIVITY MONITOR from VTAM.

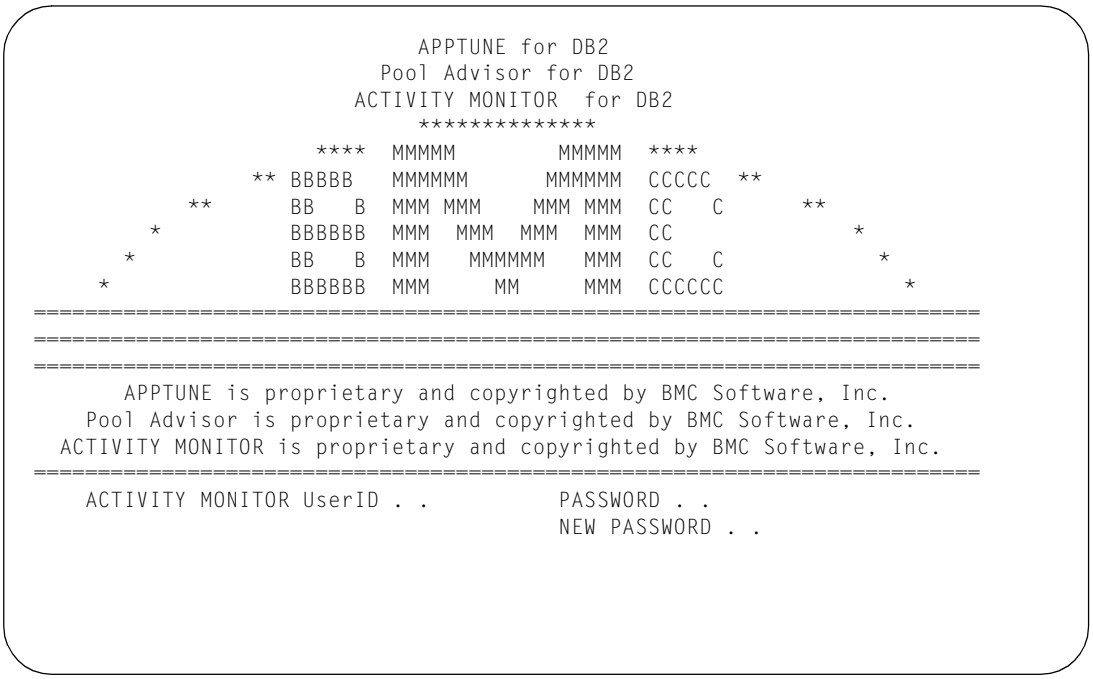
When the VTAM Router is active, users can log on to the Report Manager through VTAM. Follow these steps:

**A** Type the following LOGON command from any VTAM terminal:

```
LOGON APPLID(AMAPPL)
```

The ACTIVITY MONITOR User Signon panel is displayed (Figure 31).

**Figure 31 ACTIVITY MONITOR User Signon Panel**




If the signon panel is not displayed, check the status of the VTAM APPL as described in the previous installation step. You can also specify an optional LOGMODE parameter if you want special terminal characteristics, such as those provided by graphics or color terminals.

**B** Type your user ID and password.

The ID and password are used to validate your access to ACTIVITY MONITOR and can be the same ID and password used to access TSO. A VTAM logon ID validation user exit (DOMEXIT5) is provided, and you can use it if you need to. See the *ACTIVITY MONITOR for DB2 Reference Manual* for details. This panel can also be used to change your password.

If your logon is validated, a message is issued, indicating that ACTIVITY MONITOR is initializing. Following this message, the ACTIVITY MONITOR Main Menu is displayed. If the user ID validation fails, a message is issued, indicating the reason for failure.

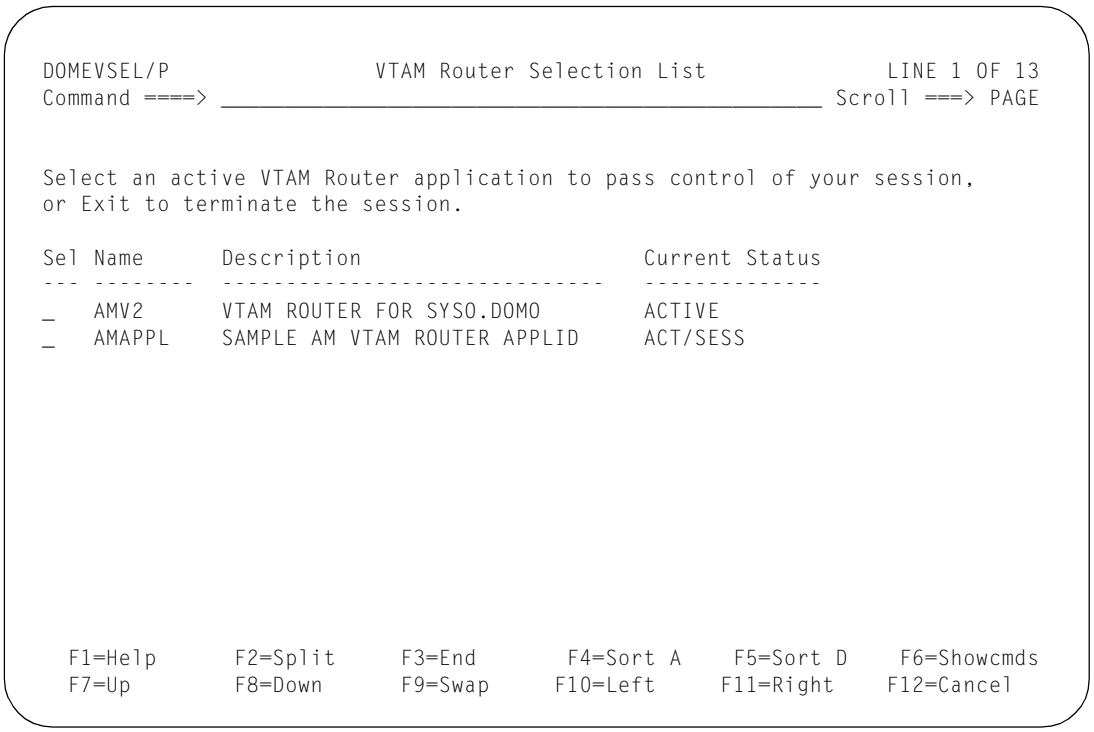
## Switching VTAM Sessions

The VTAM Router is designed to provide access to any ACTIVITY MONITOR subsystem that runs under the same MVS system as the VTAM Router address space. Sometimes it is necessary to monitor a DB2 that runs on a different MVS system on another complex in the VTAM network. ACTIVITY MONITOR provides the ability to pass a VTAM Report Manager session to a different VTAM APPL in the network.

When you exit from the ACTIVITY MONITOR Main Menu during a VTAM Router session, the VTAM Router Selection List panel (Figure 32) is displayed. This panel allows you to terminate your ACTIVITY MONITOR session or pass control of your session to another active VTAM Router.

The VTAM Router Selection List contains one entry for each ACTIVITY MONITOR VTAM Router Profile that you have created and allows you to select the VTAM Router that you want to use.

**Figure 32 VTAM Router Selection List**




The **Current Status** field indicates the status of the VTAM Router:

**ACT/SESS** You are in session with this VTAM Router.
**ACTIVE** This VTAM Router is active.
**INACTIVE** This VTAM Router is inactive.

The **Name** field indicates the name of a VTAM APPL that can be used to access ACTIVITY MONITOR. If more than one VTAM Router is started on an MVS system, each must have a unique APPL name.

To switch VTAM sessions, follow these steps:

1 Type **S** in the selection field beside an active VTAM Router and press **Enter**.

Your current VTAM Router session is terminated and a session with the selected VTAM Router is established.

2 Press **F3** (END). Your ACTIVITY MONITOR session is terminated.

## VTAM Table Considerations

The LOGMODE defines the protocol, or session parameters, for communication between two logical units. In this case, the primary logical unit (PLU) is the ACTIVITY MONITOR VTAM APPL, and the secondary logical unit (SLU) is the terminal. From the LOGMODE, ACTIVITY MONITOR can determine terminal characteristics such as the model type and color or extended graphic support. There are several ways to specify the LOGMODE:

- LOGON command
- USSTAB definitions
- VBUILD (VTAM definition) for the LU (logical unit) (terminal)—DLOGMOD parameter

### LOGON Command

Using the LOGON command, state the LOGMODE explicitly, as shown in the following example:

```
LOGON APPLID(AMAPPL) LOGMODE(D4A32782)
```

### USSTAB

USSTABLE definitions can be used to supply LOGMODE information if you do not want to associate each LU with a LOGMODE.

For example, for a model 2 terminal without extended graphics, the USSTABLE entry might be as follows:

```
USSCMD  CMD=AMO2,REP=LOGON,FORMAT=BALUSSPARM PARM=APPL,
REP=APPLID,DEFAULT=AMAPPLUSSPARM PARM=MODE,REP=LOGMODE,
DEFAULT=D4A32782
```

Using this definition, you can log on by typing **AM02**. The USSTABLE definition translates this to the following statement:

```
LOGON APPLID(AMAPPL) LOGMODE(D4A32782)
```

### VBUILD

When the LOGMODE is defined in the VBUILD, you do not need to specify the LOGMODE when you log on, as shown in the following example:

```
LOGON APPLID(AMAPPL)
```

LOGMODEs for terminals without extended attributes are supplied in the IBM default LOGMODE table (ISTINCLM). Entries for these terminals take the form D4A3278x, where x is the model of the terminal (2, 3, 4, or 5).

For example, for a model 5 terminal without extended attributes, the VBUILD for an LU or its corresponding physical unit (PU) would be the following statement:

```
DLOGMOD=D4A32785
```

LOGMODEs for terminals with extended attributes, although not included in the IBM default table, are supplied in the CBIPO and in the sample MODETAB at the end of this chapter.

For example, for a model 5 terminal with extended attributes, the VBUILD LU, or PU, would be one of the following statements:

```
DLOGMOD=G32705,MODETAB=DOMMODE
DLOGMOD=M327095S,MODETAB=M327095
```

Figure 33 is an example of a VTAM MODE table.

**Figure 33 Sample VTAM MODE Table (Part 1 of 2)**

```
*****************************************************
**                                                 **
**  NAME:   DOMMODE                                **
**  FUNCTION:      MODETABLE FOR SNA DEVICES       **
**  LIBRARIES:     SOURCE MODULE - SYS1.VTAMLST    **
**  MACROS:        MODETAB, MODEENT, MODEEND       **
**  CHARACTER 1:   'G'=GRAPHIC                     **
**                 'N' =NONGRAPHIC                 **
**  CHARACTER 2-5: DEVICE TYPE (#)                 **
**  CHARACTER 6:   MODEL NUMBER OF DEVICE          **
**                                                 **
*****************************************************
DOMMODE  MODETAB

G32702MODEENT LOGMODE=G32702,                              +
FMPROF=X'03',                                       +
TSPROF=X'03',                                       +
PRIPROT=X'B1',                                      +
SECPROT=X'90',                                      +
COMPROT=X'3080',                                    +
RUSIZES=X'87C7',                                    +
PSERVIC=X'028000000000185018507F00'
N32702MODEENT LOGMODE=N32702,                              +
FMPROF=X'03',                                       +
TSPROF=X'03',                                       +
PRIPROT=X'B1',                                      +
SECPROT=X'90',                                +
COMPROT=X'3080',                              +
RUSIZES=X'87C7',                              +
PSERVIC=X'020000000000185018507F00'
G32703MODEENT LOGMODE=G32703,                              +
FMPROF =X'03',                                +
TSPROF=X'03',                                 +
PRIPROT=X'B1',                                +
SECPROT=X'90',                                +
COMPROT=X'3080',                              +
RUSIZES=X'87C7',                              +
PSERVIC=X'028000000000185020507F00'
N32703MODEENT LOGMODE=N32703,                              +
FMPROF=X'03',                                 +
TSPROF=X'03',                                 +
PRIPROT=X'B1',                                +
SECPROT=X'90',                                +
COMPROT=X'3080',                              +
RUSIZES=X'87C7',                              +
PSERVIC=X'020000000000185020507F00'
G32704MODEENT LOGMODE=G32704,                              +
FMPROF=X'03',                                       +
TSPROF=X'03',                                       +
PRIPROT=X'B1',                                      +
SECPROT=X'90',                                      +
COMPROT=X'3080',                                    +
```

**Figure 33 Sample VTAM MODE Table (Part 2 of 2)**

```
RUSIZES=X'87C7',                                    +
PSERVIC=X'028000000000018502B507F00'
N32704MODEENT LOGMODE=N32704,                             +
FMPROF=X'03',                                       +
TSPROF=X'03',                                       +
PRIPROT=X'B1',                                      +
SECPROT=X'90',                                      +
COMPROT=X'3080',                                    +
RUSIZES=X'87C7',                                    +
PSERVIC=X'020000000000018502B5070'
G32705MODEENT LOGMODE=G32705,                             +
FMPROF=X'03',                                       +
TSPROF=X'03',                                       +
PRIPROT=X'B1',                                      +
SECPROT=X'90',                                      +
COMPROT=X'3080',                                    +
RUSIZES=X'87C7',                                    +
PSERVIC=X'028000000000018501B847F00'
N32705MODEENT LOGMODE=N32705,                             +
FMPROF=X'03',                                       +
TSPROF=X'03',                                       +
PRIPROT=X'B1',                                      +
SECPROT=X'90',                                      +
COMPROT=X'3080',                                    +
RUSIZES=X'87C7',                                    +
PSERVIC=X'020000000000018501B847F00'

MODEEND
END
```

# Start the Data Collector

This task is required.

The product procedure (PROC) must be invoked to initialize the Data Collector. One Data Collector can monitor multiple DB2 subsystems on one MVS. The DB2 subsystems to be monitored were specified by using the Installation Assistant. The Data Collector can be invoked as an MVS-started task or as a batch job.

### Invoking the Data Collector as a Started Task

Issue the MVS START command for the started task created from DOM*cccc* (see "Edit or Review the JCL Procedures" on page 82), as follows:

```
START DOMcccc
```

where DOM*cccc* is the name of the modified task and *cccc* is the subsystem ID of the local Data Collector previously specified in the DOMPLEX Profile (see page 94). *Do not use the name of the DB2 subsystem*.

***NOTE***

DOMcccc is the recommended name for your started task, but you can use any naming convention that is legal for OS/390 and z/OS.

You can also issue the MVS START command for the started task by specifying **START DOMcccc,SYS=cccc**. If you start the started task in this manner, the subsystem IDs of the local Data Collector (cccc) must be identical.

### Invoking the Data Collector as a Batch Job

Submit the JCL created when you edited the JCL procedures (see "Edit or Review the JCL Procedures" on page 82).

## Start the Exception Facility

This task applies only to ACTIVITY MONITOR.

The Exception Facility will be started automatically by the Data Collector if the Exception Facility PROC is specified in the DOMPLEX Profile.

Otherwise, you can use one of the following methods:

- Use the MVS START command for the DOMEXCEP PROC, as follows:

```
START DOMXCEP,SYS=ssid
```

  where `DOMXCEP` is the name of the modified DOMXCEP procedure and `ssid` is the Data Collector subsystem ID.

- Invoke the PROC from a batch job (for instructions, see 2 on page -83).

## Check the System Console Log Messages

Watch the system console log for the messages issued by the product procedure (PROC). When the Data Collector becomes active, messages similar to those shown in the JES Job Log and SYSPRINT Messages Report (Figure 35 on page 144) are displayed.

***NOTE***

DSNW133I messages (Trace data set lost. Destination not accessible.) are sometimes issued by DB2 while the Data Collector is starting. You can ignore these messages. The messages will stop after the Data Collector starts and makes contact with DB2.

To check the system console log messages, follow these steps:

1 Verify the licensing for your installed products.

Lines that begin with "BMC24907" contain the licensing information for your installed products.

2 Verify the subsystem and plan names.

Lines that begin with "BMC24951" contain information about the subsystems and plans that are recognized by the Data Collector.

***NOTE***

This information is stored in the DOMPLEX Profile. The Data Collector uses these plans to perform Explain operations. If you bind one of these plans under a different name, the Explain process will fail.

3 On the **Command** line, enter **/cccc APPSTAT**, where *cccc* is the subsystem ID of the local Data Collector previously specified in the DOMPLEX Profile (see page 94).

The status of all DB2s that are recognized by the Data Collector is displayed.

**Figure 34 JES Job Log and SYSPRINT Messages Report (Part 1 of 2)**

```
J E S 2  J O B  L O G  --  S Y S T E M  D B 2 A  --  N O D E  B M C P L X 1

--- THURSDAY,  02 OCT 2003 ----
IEF695I START DOMV41A  WITH JOBNAME DOMV41A  IS ASSIGNED TO USER ++++++++
$HASP373 DOMV41A  STARTED
IEF403I DOMV41A - STARTED - TIME=10.54.31
BMC21100I SUBSYSTEM READY - SSCT(00F75000)  V41A
BMC24907 V41A ACTIVITY MONITOR LICENSE VERIFIED FOR THIS PROCESSOR
BMC24907 V41A MVDB2/DC LICENSE VERIFIED FOR THIS PROCESSOR
BMC24907 V41A POOL ADVISOR LICENSE VERIFIED FOR THIS PROCESSOR
BMC24907 V41A APPTUNE LICENSE VERIFIED FOR THIS PROCESSOR
BMC24907 V41A SQL EXPLORER LICENSE VERIFIED FOR THIS PROCESSOR
BMC24907 V41A APP PERF SOLUTION LICENSE VERIFIED FOR THIS PROCESSOR
BMC24487 V41A DAA.V4100.STATUS  REPOSITORY IS NOW OPEN
BMC24487 V41A DAA.V4100.PROFILE  REPOSITORY IS NOW OPEN
BMC24487 V41A DAA.V4100.SECURITY  REPOSITORY IS NOW OPEN
BMC24487 V41A DAA.V4100.CUSTOM  REPOSITORY IS NOW OPEN
BMC24487 V41A DAA.V4100.HELP  REPOSITORY IS NOW OPEN
BMC24487 V41A DOM.V4R1TEST.COPYDIR  REPOSITORY IS NOW OPEN
BMC24487 V41A PSS.V4R1Z00.V41A.DCC$VARS  REPOSITORY IS NOW OPEN
BMC24487 V41A PSS.V4R1Z00.V41A.PMD$HIST  REPOSITORY IS NOW OPEN
BMC24956 V41A Data Collector V4.1.00 (09/2003) V41A01EB (1145F000)
BMC24967 V41A Advisor Var Pool initialized (01010052 - 20MB - 2MB)
BMC22006 V41A Common Explain Hosting for V4.1.00 is now available
...
BMC24952 V41A Data Collector successfully initialized  V41A01EB (1145F000)
BMC24945 V41A Note: use "P V41A" to stop this Data Collector
BMC24960 V41A DB2 trace collector enabled for V41A, RC=00
S DOMXCEP.V41AXF,SYS=V41A
BMC24453 V41A *DOM* RC=0000 - Product initialization successful
BMC24453 V41A *BDS* RC=0000 - Product initialization Successful
BMC87901I DASDB2A1 DAS Commands active for task of DOMV41A .
BMC24453 V41A *PMD* RC=0000 - Product Initialization successful
BMC23500 V41A Pool Advisor for DB2 Version 2.3.00 (09/2003) now active
BMC24453 V41A *PSS* RC=0000 - Product initialization commencing
BMC24453 V41A *PSS* RC=0000 - Product initialization successful
BMC24453 V41A *AFD* RC=0000 - Product INITIALIZATION SUCCESSFUL
BMC22614 BMCSPO SQL CONTROLLER STARTED
BMC87901I DASDB2A1 DAS Commands active for task of DOMV41A .
BMC24951 V41A DB2=DEAE Rel=610 Char=*DEAE    Status=UP       Plan=DAA410D1
BMC24951 V41A DB2=DEAH Rel=610 Char=*DEAH    Status=UP       Plan=DAA410D1
BMC24951 V41A DB2=DBAC Rel=710 Char=*DBAC    Status=UP       Plan=DAA410D1
BMC24951 V41A DB2=DBBY Rel=    Char=*DBBY    Status=DOWN     Plan=DAA410D1
BMC24951 V41A DB2=DEBF Rel=710 Char=*DEBF    Status=UP       Plan=DAA410D1
BMC24951 V41A DB2=DEBA Rel=710 Char=*DEBA    Status=UP       Plan=DAA410D1
BMC24951 V41A DB2=DFD1 Rel=610 Char=*DFD1    Status=UP       Plan=DAA410D1
BMC24951 V41A DB2=DGA2 Rel=    Char=*DGA2    Status=DOWN     Plan=DAA410D1
```

**Figure 34 JES Job Log and SYSPRINT Messages Report (Part 2 of 2)**

```
BMC24951 V41A DB2=DGA1 Rel=710 Char=*DGA1    Status=UP       Plan=DAA410D1
BMC24951 V41A DB2=DFD2 Rel=    Char=*DFD2    Status=DOWN     Plan=DAA410D1
BMC24951 V41A DB2=DEA9 Rel=610 Char=*DEA9    Status=UP       Plan=DAA410D1
BMC24330 V41A DSNW130I *DEAE MON TRACE STARTED, ASSIGNED TRACE NUMBER 04
BMC24330 V41A DSN9022I *DEAE DSNWVCM1 '-STA TRACE' NORMAL COMPLETION
BMC24951 V41A DB2=DEBY Rel=710 Char=*DEBY    Status=UP       Plan=DAA410D1
BMC24330 V41A DSNW130I *DEAE MON TRACE STARTED, ASSIGNED TRACE NUMBER 04
BMC24330 V41A DSN9022I *DEAE DSNWVCM1 '-MOD TRACE' NORMAL COMPLETION
BMC24330 V41A DSNW130I *DEAE ACCTG TRACE STARTED, ASSIGNED TRACE NUMBER 05
BMC24330 V41A DSN9022I *DEAE DSNWVCM1 '-STA TRACE' NORMAL COMPLETION
BMC24330 V41A DSNW130I *DEAE ACCTG TRACE STARTED, ASSIGNED TRACE NUMBER 05
BMC24330 V41A DSN9022I *DEAE DSNWVCM1 '-MOD TRACE' NORMAL COMPLETION
BMC24321 V41A Command completed RC=0000  "REFRESH AUTH DEAE"
BMC24310 V41A AUTH refresh for DEAE started
...
BMC23018 V41A Data collector status for V41A
BMC23034 V41A DB2=DEAE     DSGROUP=N/A      VERSION=61     STATUS=ACTIVE
BMC23035 V41A              COLLECTION=ACTIVE   ENTRIES= 557
BMC23036 V41A COLLECT OPTS:TEXT=Y,             BP=Y,          LOCK=Y,
BMC23037 V41A              I/O=Y,              OBJECT=N,      ERRORS=Y,
BMC23038 V41A              FETCH=Y,            FILTER=N/A     SAMPLE=N,
BMC23039 V41A SUMMARY OPTS:USERID=N,           CONNECTION=N,  CORRELATION=N,
BMC23040 V41A              DYNAMIC STMT=N,     WORKSTATION=N  DETAIL=N
BMC23034 V41A DB2=DEAH     DSGROUP=N/A      VERSION=61     STATUS=ACTIVE
BMC23035 V41A              COLLECTION=INACTIVE  ENTRIES= 0
BMC23036 V41A COLLECT OPTS:TEXT=Y,             BP=Y,          LOCK=Y,
BMC23037 V41A              I/O=Y,              OBJECT=N,      ERRORS=Y,
BMC23038 V41A              FETCH=Y,            FILTER=N/A     SAMPLE=N,
BMC23039 V41A SUMMARY OPTS:USERID=N,           CONNECTION=N,  CORRELATION=N,
BMC23040 V41A              DYNAMIC STMT=Y,     WORKSTATION=N  DETAIL=N
BMC23034 V41A DB2=DBAC     DSGROUP=N/A      VERSION=71     STATUS=ACTIVE
BMC23035 V41A              COLLECTION=ACTIVE   ENTRIES= 564
BMC23036 V41A COLLECT OPTS:TEXT=Y,             BP=Y,          LOCK=Y,
BMC23037 V41A              I/O=Y,              OBJECT=Y,      ERRORS=Y,
BMC23038 V41A              FETCH=Y,            FILTER=N/A     SAMPLE=N,
BMC23039 V41A SUMMARY OPTS:USERID=Y,           CONNECTION=N,  CORRELATION=N,
BMC23040 V41A              DYNAMIC STMT=Y,     WORKSTATION=N  DETAIL=N
...
```

Detailed information for all messages is available in online Help. Type **HELP <message-id>** on the **Command** line of any System and SQL Performance product panel and press **Enter**.

To stop this Data Collector at a later time, use the MVS STOP command as follows:

`P ssid` where *ssid* is the name of your Data Collector.

If the Data Collector is being run as a batch job, use the following MVS STOP command:

`P jobname` where *jobname* is the Data Collector batch job.

When the STOP command is issued, a list of messages is displayed. Detailed information for all messages is available in online Help.

To stop the Exception Facility (ACTIVITY MONITOR only) independently of the Data Collector, use the following MVS STOP command:

`P ssidXF` where *ssid* is the name of your Data Collector.

***NOTE***

You can issue MVS START and STOP commands from the operator console or SDSF.

# Verify the Installation

To verify the installation,

- ACTIVITY MONITOR, SQL Explorer, APPTUNE, and Application Performance users must start a product session and issue an Explain command.
- Pool Advisor and SmartDBA System Performance users must start a product session and start a reporting session.
- MAINVIEW for DB2 – Data Collector users must access the menu from a MAINVIEW for DB2 Easy Menu. For more information, see the *MAINVIEW for DB2 User Guide*, *Volume 1: Views*.

These tasks are *required*. Follow these directions:

## Start a Product Session

If you previously terminated your session, see "Invoke the Product from ISPF" on page 94 for instructions to invoke the product. Otherwise, the product's main menu is still displayed.

## Select a DOMPLEX

The product selects a DOMPLEX automatically if there is a DOMPLEX with a compatible Data Collector active when you begin your session.

If no Data Collector is selected (the **Current Data Collector** field is blank), follow these directions to select a Data Collector:

**1** Display the DOMPLEX Selection panel (Figure 36 on page 147).

The DOMPLEXes option appears on all main menus, but the option number is not the same on all main menus. Select the option that is labeled **DOMPLEXes**.

**Figure 35 DOMPLEX Selection Panel**

```
DOMEQSSS/P                      DOMPLEX Selection                  LINE 1 OF 53
Command ====> _____________________________________________________ Scroll ===> CSR_


Current Data Collector :           Status :

Select a DOMPLEX from the following list to be the data source for future
requests.  Press Enter to process the new selection.
                                                                      Product
Sel  DOMPLEX  DC SSID          Description             Status    Compatibility
---  -------  -------  -------------------------------- --------  -------------
_    DOMDC01  DC01     DEFAULT PROFILE                  ACTIVE    COMPATIBLE
              LOCAL DB2S: DB2S DB21









  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Showcmds
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

**2** Select a DOMPLEX.

The defined DOMPLEXes are listed and should include the DOMPLEX you created by using the Installation Assistant.

**A** Select a DOMPLEX with a compatible Data Collector that has a **Status** of **ACTIVE**.

***NOTE***

If no DOMPLEX with an active compatible Data Collector is available, return to "Start the Data Collector" on page 142 and start a Data Collector.

**B** Type **S** in the **Sel** field beside the DOMPLEX name and press **Enter**.

**3** Press **F3** (END) to return to the main menu.

# Issue a Dynamic Explain Command

This task applies only to ACTIVITY MONITOR, APPTUNE, MAINVIEW for DB2 – Data Collector, and Application Performance.

***NOTE***

From MAINVIEW for DB2, hyperlink from the THDDETL view for a long-running thread to access a report from which you can invoke the dynamic Explain for the active SQL statement. For more information, see the *MAINVIEW for DB2 User Guide, Volume 1: Views*.

The successful execution of an Explain command confirms that the Report Manager is communicating with the Data Collector, that the Data Collector is communicating with DB2, that the DAA*vrm*D1 plan is working, and that installation is complete.

To issue a dynamic Explain command, follow these steps:

1 Display the Explain Object Specification panel (Figure 36).

- From the ACTIVITY MONITOR Main Menu, select option **4, Explain Interface** and press **Enter**.
- From the APPTUNE Main Menu, select option **3, Explain Interface** and press **Enter**.

**Figure 36 Explain Object Specification Panel (PSSPA115)**

```
PSSPA115 ---------------- Explain Object Specification -----------------------
Command ===>

 SSID  . . DBBJ
 Type  . . 2  (1=Plan, 2=Package, 3=DBRM, 4=DBRMLIB, 5=Ad Hoc SQL)

 PLAN:
   Name

 PACKAGE:
   COLLID  %                    Name . . . PSSESQL
   Version %

 DBRM:
   Plan                         Name . . .

 DBRMLIB:   (Specify PDS with member name or wildcard member.)
   DSN . .

 Processing Mode:  L         (L=List object(s),
                              B=Batch Explain with specified objects)
_ Explain Options
```

2 Complete the Explain Object Specification panel as follows:

**A** Specify an **SSID**.

**B** Type **5** in the **Type** field.

**C** Press **Enter**.

An edit session is displayed (Figure 37).

**Figure 37 Ad Hoc SQL Explain Edit Session**

```
 File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help

ISREDDE2   EXPLAIN                                        Columns 00001 00072
Command ===>                                                 Scroll ===> PAGE
****** ***************************** Top of Data ******************************
==MSG> -Warning- The UNDO command is not available until you change
==MSG>           your edit profile using the command RECOVERY ON.
000001 SELECT * FROM SYSTABLES
****** **************************** Bottom of Data ****************************
```

3 In the edit window, type **SELECT * FROM SYSTABLES** and press **F3**.

The Explain or Execute Parameters panel is displayed (Figure 38).

**Figure 38 Explain or Execute Parameters Panel (PSSPA117)**

```
PSSPA117 ----------------- Explain or Execute Parameters ----------------------
Command ===>

Specify the options below and press ENTER to continue.

Option . . . . . 1    1. Explain
                      2. Execute
                      3. Edit

Qualifier Name . . . . . SYSIBM
```

4 Complete the Explain or Execute Parameters panel as follows:

**A** Type **1** in the **Option** field.

**B** Type **SYSIBM** in the **Qualifier Name** field.

**C** Press **Enter.**

The Explain Results panel is displayed (Figure 39 on page 148).

**Figure 39 Explain Results Panel (PSSPE200)**

```
 Menu  Utilities  Compilers  Help

BROWSE    RDAKNN.SPF1.LIST                                                    Line 00000000 Col 001 120
Command ===>                                                                        Scroll ===> CSR
                                                                                      More:       >

****************************************************** Top of Data ********************************************************
LBL   STMTNO     COST*RATE SQL-STATEMENT
XD01          13489.976562 SELECT * FROM SYSTABLES ;
      COST*RATE QB PL MIX METH NO TTYPE TCREATOR TNAME              ACC MTCH IX ACREATOR IX NAME            NU J O G CU
XD01  13489.976  1  1   0    0  1 T     SYSIBM   SYSTABLES          I      0 N  BMCADM   IXITBL4            N  N N N N
****************************************************** Bottom of Data *****************************************************
```

**5** Verify that the Explain executed correctly by reviewing the Explain Results.

**A** If the command returns a negative SQL code instead of Explain text, verify the following conditions:

- The plan table was created successfully.
- The plan name was specified correctly in the DOMPLEX Profile.

**B** If one or more of these conditions were not met, correct them and repeat "Issue a Dynamic Explain Command" on page 146. If you cannot determine why the command failed, contact BMC Software Customer Support for assistance.

**C** To view all the information on the Explain Results panel, press F11 to scroll to the right and press F10 to scroll to the left.

***NOTE***

When you have successfully produced the Explain Results, the verification procedure for ACTIVITY MONITOR and APPTUNE is complete.

# Start a Pool Advisor or SmartDBA System Performance Reporting Session

1 Select option **P** (Pool Advisor) from the Pool Advisor for DB2 main menu or select option **D** (System Performance) from the SmartDBA System Performance for DB2 main menu.

The DB2 Pools Status Monitor report (PMDMAIN) is displayed (Figure 41) for Pool Advisor.

**Figure 40 DB2 Pools Status Monitor Report (PMDMAIN)**

```
PMDEQRPN/P                Pool Advisor Report Viewer                LINE 1 OF 1
Command ====> ____________________________________________________ Scroll ===> CSR_

SYSTEM.PMDMAIN        --    DB2 POOLS STATUS MONITOR    --        01/02 17:44:24
---< HELP >--------------------< NOTES >----------------------< CONFIG >---
   Actions: T - Text   A - Analysis   H - History   C - Configuration advisor
                                                  <-------- Efficiency -------->
    DB2   Rel  Health  Region  PageRt  BPGpRt     BP   DSC  EDM  RID  SORT GBP
   -----  ---  ------  ------  ------  ------     ---- ---- ---- ---- ---- ----
 + DBBJ   5.1   GOOD      34M       0       0    100% 100% 100% 100% 100% N/A%
 + DBBP   6.1   GOOD     118M       0       0    100% 100% 100% 100% 100% N/A%
 + DBI1   7.1   GOOD      51M       0       0    100% 100% 100% 100% 100% 100%
 + DBI2   7.1   GOOD      87M       0       0    100% 100% 100% 100% 100% 100%









  F1=Help      F2=Split     F3=End      F4=Sort A    F5=Sort D    F6=Zoom
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

The Sysplex DB2 Monitor report (SPDMAIN) is displayed (Figure 41) for SmartDBA System Performance.

**Figure 41 sysplex DB2 Monitor Report (SPDMAIN)**

```
SPDEQRPN/P            SmartDBA System Performance for DB2          LINE 1 OF 6
Command ====> _____________________________________________ Scroll ===> CSR_

BMCSftwr.SPDMAIN     --      SYSPLEX DB2 MONITOR       --       09/28 14:00:06
---< HELP >--------------------< WARNING >----------------------< CONFIG >---
  Actions: S- Details  Z- ZPARMS    M- MainView O- Opertune P- Pool Advisor

                          DB2  DBM1 DBM1 GetPg Curr  /---Component Status---\
  DB2  Rel DS-Group  MVS  CPU% Strg PgRt  Rate Thds  Thrd Strg Log  Dist Othr
  ---- --- -------- ----  ---- ---- ----- ----- ----  ---- ---- ----  ---- ----
+ DBI1 7.1 DSNDBI   SYSO    1  69M    0     0    0 GOOD GOOD FAIR GOOD GOOD

  F1=Help      F2=Split     F3=End       F4=Sort A    F5=Sort D    F6=Zoom
  F7=Up        F8=Down      F9=Swap     F10=Left     F11=Right    F12=Cancel
```

2 Verify that data is present from the DB2 subsystems defined to the selected Data Collector.

***NOTE***

When you have successfully activated the DB2 Pools Status Monitor report showing current data, you have finished the verification process for Pool Advisor and System Performance.

**A** If you are also installing SQL Explorer or Application Performance, you must verify the SQL Explorer installation.

**B** Otherwise, press **F3** until you exit the product.

# Verify the SQL Explorer Installation

To verify that SQL Explorer has been installed correctly, follow these steps:

1 Test the Call Attach facility (CAF).

A Select option **S** on the SQL Explorer for DB2 main menu.

The SQL Explorer panel is displayed.

B Select option **1** (Explain), type the subsystem ID of an active, local DB2 in the **SSID** field, and press **Enter**.

The Explain Object Specification panel is displayed.

C Complete the Explain Object Specifications panel as follows:

- Type **2** in the **Type** field.
- Type **%** in the **PACKAGE: Collid** field (% is a wildcard).
- Type **PSSESQL** in the **PACKAGE: Name** field.
- Type **%** in the **PACKAGE: Version** field.
- Type **Y** (Yes) in the **Object Selection List** field.

D Press **Enter** to display the Explain Object Specification List panel.

At least one entry for package PSSESQL should be displayed on the Explain Object Specification List panel. This verifies that CAF is working. Multiple entries indicate that there is more than one version of SQL Explorer installed.

E Type any character in the space to the left of a collection ID for a PSSESQL object, press **Enter**, and then press END (**F3**).

The Explain Options panel is displayed.

F Type **QUAL** in the **Qualifier Name** field to specify that the Explain operation uses the qualifier name that was provided at bind time.

G Press **Enter** to execute the dynamic Explain command.

The Explain results are displayed on the Explain Report (see Figure 40 on page -150).

H Verify that the Explain command executed correctly by reviewing the Explain Report.

You can hyperlink from the **STMT** field directly to the access path information about the report. Move the cursor to the **STMT** field and press **Enter**. Press CANCEL (**F12**) to return to the location of the previous hyperlink.

I If the command returns a negative SQL code instead of Explain text, verify the following conditions:

- The plan table was created successfully.
- The plan name was specified correctly in the DOMPLEX Profile.

**J** If one or more of these conditions were not met, correct them and repeat "Issue a Dynamic Explain Command" on page 148. If you cannot determine why the command failed, contact BMC Software Customer Support for assistance.

***NOTE***

If you are *not* using the Distributed Data Facility (DDF), you have finished the verification process. Press **F3** until you exit the product. If you *are* using the DDF, proceed to 2.

**2** Test the Distributed Data Facility.

**A** Return to the SQL Explorer menu (PSSPF000).

**B** Select option **1**, type the subsystem ID of an active, local DB2 in the **SSID** field, type the location of a remote DB2 in the **DDF Location** field, and press **Enter**.

The Explain Object Specification panel is displayed.

**C** The values previously typed in the fields on the Explain Object Specification panel should still be displayed. If not, use the values from 1 on page -157. Press **Enter** to display the Explain Object Specification List panel.

At least one entry for package PSSESQL should be displayed on the Explain Object Specification List panel if SQL Explorer is installed at the remote site and its location name is in the communications database for the subsystem to which you are connecting. Multiple entries indicate that there is more than one version of SQL Explorer installed.

**D** Type any character in the space to the left of **COLLECTION ID** for a PSSESQL object, press **Enter**, and then press END (**F3**).

The Explain Options panel is displayed.

**E** Press **Enter** to execute the dynamic Explain command.

The Explain results are displayed on the Explain Report (see Figure 40 on page -150).

**F** Verify that the Explain command executed correctly by reviewing the Explain Report.

If the command returns a negative SQL code instead of Explain text, verify the following conditions:

- The plan table was created successfully
- The plan name was specified correctly in the DOMPLEX Profile.

**G** If one or more of these conditions were not met, correct them and repeat "Issue a Dynamic EXPLAIN Command" on page 148. If you cannot determine why the command failed, contact BMC Software Product Support for assistance.

You can hyperlink from the **STMT** field directly to the access path information about the report. Move the cursor to the **STMT** field and press **Enter**. Press CANCEL (**F12**) to return to the location of the previous hyperlink.

***NOTE***

When you have successfully completed these steps, you have finished the verification process for SQL Explorer. Press **F3** until you exit the product.

# Where to Go from Here

When installation and customization of your products or solution is complete, see the following books for more information about the products or solution:

| Product | Book |
|---|---|
| ACTIVITY MONITOR | *ACTIVITY MONITOR for DB2 Reference Manual*<br>*System and SQL Performance for DB2 Administrator Guide* |
| APPTUNE | ***APPTUNE for DB2 User Guide***<br>*System and SQL Performance for DB2 Administrator Guide* |
| MAINVIEW for DB2 – Data Collector | *MAINVIEW for DB2 User Guide*<br>*MAINVIEW Administration Guide*<br>*System and SQL Performance for DB2 Administrator Guide* |
| Pool Advisor | *Pool Advisor for DB2 User Guide*<br>*System and SQL Performance for DB2 Administrator Guide* |
| SQL Explorer | *SQL Explorer for DB2 User Guide*<br>*System and SQL Performance for DB2 Administrator Guide* |
| Application Performance | *Application Performance for DB2 User Guide*<br>*System and SQL Performance for DB2 Administrator Guide* |
| SmartDBA System Performance | *SmartDBA System Performance for DB2 User Guide*<br>*System and SQL Performance for DB2 Administrator Guide* |

Chapter 3

# SQL Explorer for DB2 Client

This chapter presents the following topics:

# Overview

The BMC Admin Server is a started task that executes on OS/390. The SQL Explorer graphical user interface (GUI) uses the BMC Admin Server to access the Database Administration products executing on OS/390. This chapter describes the tasks that you must perform after you have installed the BMC Admin Server for SQL Explorer. This chapter also describes the tasks that you must perform to install, start, and configure the client for SQL Explorer.

## System Requirements

Table 23 lists the requirements for the system software that the product supports.

**Table 23 System Requirements for Client**

| Operating System Platforms | Communication Protocols | Minimum Hardware | Free Disk Space |
|---|---|---|---|
| ■ Microsoft Windows NT 4.0 with Service Pack 4 or later applied<br>■ Microsoft Windows 98 Second Edition<br>■ Microsoft Windows 2000 | ■ IBM TCP/IP for OS/390 version 3.1 or later<br>■ IBM APPC/MVS for MVS version 4.3 or later | ■ 64 MB RAM<br>■ 200 Mhz Pentium<br>■ VGA video (at least 600 X 800)<br>■ 4X (or faster) CD drive | ■ SQL Explorer: 72.4 MB<br>■ 6 MB in the **temp** directory for temporary files created during installation<br>**temp** is typically defined in the autoexec.bat file. If it is not, 6 MB of free space in the **windows** (or **winnt**) directory is required. |

## Client, Mainframe, and Server Versions

Table 24 shows which mainframe and server versions of SQL Explorer are required for each client version.

**Table 24 Version Equivalents for Client, Mainframe, and Server**

| Client Version | Mainframe Version | Server Version |
|---|---|---|
| 3.1.04 | 4.1.00 | 7.3.01 |
| 3.1.04 | 4.0.00 | 7.2.01 |
| 3.1.04 | 3.4.00 | 7.1.01 |
| 3.1.04 | 3.3.00 | 7.1.01 |

# Performing the Post-Installation Tasks for the BMC Admin Server

After you install the BMC Admin Server for SQL Explorer, you must perform the tasks listed in Table 25.

**Table 25 Post-Installation Tasks for BMC Admin Server**

| Task | Page |
|---|---|
| 1. Configuring your communication protocol:<br>■ If you chose TCP/IP as your protocol, see "Configuring TCP/IP."<br>■ If you chose APPC SNA, see "Configuring APPC SNA." | <br>158<br>161 |
| 2. *(APPC SNA protocol only)* Setting Up the BMC Admin Server | 162 |
| 3. *(APPC SNA protocol only)* Setting Up the SNA Gateway Server | 169 |
| 4. *(APPC SNA protocol only)* Setting Up the SNA Client | 173 |
| 5. Confirming the Host-Code Page for the BMC Admin Server | 175 |
| 6. Enabling the Use of Secondary Authorization IDs | 176 |
| 7. Installing the Client | 177 |
| 8. Verifying Installed Files | 186 |
| 9. Starting the Client | 188 |
| 10. Configuring the Client | 190 |

# Configuring TCP/IP

In this task, you select TCP/IP as your communication protocol for the BMC Admin Server.

**1** Edit the INI#ACV file.

The PATROLDB member is the started task that allows the clients to communicate with DB2. PATROLDB uses the initialization file INI#ACV to establish the TCP/IP address (port address), as well as the default options (DOPTs) that the BMC Admin Server uses.

After you complete the installation, the members INI#ACV and PATROLDB are placed in the *HLQ*.CNTL data set. The INI#ACV member contains the TCP/IP port number that the BMC Admin Server monitors. If an incorrect port number is specified during installation, you can edit it manually in INI#ACV. You do not need to register your port in the TCP/IP profile data set.

Figure 42 shows an example of an INI#ACV member.

**Figure 42 Sample of INI#ACV Member (Part 1 of 2)**

```
##Server INI file used by SQL Explorer for DB2
sbiDBS.CP =CP037
sbiDBS.MaxAgents =16
sbiDBS.MAXADDR=16
sbiDBS.AutoStart =1
sbiDBS.Server1 =MVSTCP

MVSDB2.AccessDriver =SBIDB2M
MVSSPD.AccessDriver =SBISPDM
MVSJZS.AccessDriver =SBIJZSM
MVSFILE.AccessDriver =ACVFILM

MVSTCP.ServerEnabled =1
MVSTCP.OperatingMode =SERVER
MVSTCP.LocalMethod =MultiplexSVP
MVSTCP.AccessDriver =SBIRTMM
MVSTCP.ProtocolDriver =SBITCPM
MVSTCP.lanadapter =0
MVSTCP.client =
MVSTCP.server =
MVSTCP.protocol =tcp

##TCPIP Port address assigned to Server
MVSTCP.service =1313
##Packet size must be at least 8192
MVSTCP.packetsize =8192
MVSTCP.receivetimeout =0
MVSTCP.transmitttimeout =0
MVSTCP.SASDebug =0
MVSTCP.HPNS =1
```

**Figure 42 Sample of INI#ACV Member (Part 2 of 2)**

```
JSI.JSISSID =JSI1
JSI.JESSID =JES2
JSI.JSIDDL =00
JSI.SPOOLBYOWNER =0

FOREGROUND.STARTEDPROC=BMCAKMFG

SCRIPT.FILE ='BMCPERF.D62.SCRIPT'

##SECTION DOPTS "DOPTS BY SSID:NICKNAME" ST_1
DOPTS.DB25_DIRECTP =BMCPERF.D62.LOAD(PSSDOPD1)
```

At the bottom of the INI#ACV member is the DOPTs file location that the product uses to connect to DB2. The SSID field that is stored in the DOPTs module is the SSID to which the SQL Explorer product's client connects. This DOPTs module is referenced by a nickname that you specify during the configuration of the client.

**2** Configure OS/390:

- If you are using OS/390 release 2.5 or later and IBM TCP/IP version 3.4 or later, the owner of the started procedure (that is, the user ID that is accessing TCP/IP) must define an OMVS segment in Resource Access Control Facility (RACF) or in another security package to operate the BMC Admin Server.
- If you are using OS/390 release 2.4 or earlier, set the MVSTCP.HPNS variable, found in the Server .INI file, to MVSTCP.HPNS=0. A zero value indicates that the TCP/IP API will not be defined as High-Performance Native Sockets (HPNS).

**3** Activate the BMC Admin Server.

The PATROLDB member, shown in Figure 43 on page 160, is the started task that allows the BMC Admin Server to communicate with DB2.

**Figure 43 ISPF Edit Panel**

```
EDIT ---- BMCADMN.V621.D62.CNTL(PATROLDB) - 01.00 ------------ COLUMNS 001 072
COMMAND ===>                                                  SCROLL ===> CSR
****** ***************************** TOP OF DATA ******************************
000001 //PATROLDB  PROC OUT=X
000002 //*
000003 //PATROLDB EXEC PGM=XAMSERV,PARM='1 0 0 0 MVSDB2 1',REGION=0M
000004 //STEPLIB  DD DISP=SHR,DSN=BMCPERF.D62.LOAD
000005 //         DD DISP=SHR,DSN='SYS2.DB2V61M.DSNLOAD'
000006 //JSIDLL   DD DISP=SHR,DSN=BMCPERF.D62.LOAD
000007 //MSGKSDS  DD DISP=SHR,DSN=BMCPERF.D62.ACVMSGS
000008 //BMCIPROF DD DISP=SHR,DSN=BMCPERF.D62.CNTL(INI#ACV)
000009 //JZSJES   DD SYSOUT=(Q,INTRDR)      ==  INTERNAL READER
000010 //SYSTCPD  DD DISP=SHR,DSN='TCPIP.TCPIP.DATA'
000011 //SBISCRC  DD DUMMY
000012 //SYSUDUMP DD SYSOUT=&OUT
000013 //SYSPRINT DD SYSOUT=&OUT            ==  DEBUG MSGS
000014 //STDOUT   DD SYSOUT=&OUT            ==  DEBUG MSGS
000015 //SYSTERM  DD SYSOUT=&OUT            ==  ERROR MSGS
000016 //STDERR   DD SYSOUT=&OUT            ==  ERROR MSGS
000017 //SYSOUT   DD SYSOUT=&OUT            ==  ERROR MSGS
000018 //*
****** ***************************** BOTTOM OF DATA ***************************
```

**A** In the STEPLIB of the PATROLDB started task, specify the load libraries that you referenced in the INI#ACV file.

***NOTE***

The STEPLIB must point to only APF-authorized load libraries.

If you work in a data-sharing environment, uncomment line 6 shown in Figure 43 (`DD DISP=SHR, DSN= 'BMCPERF.D62.LOAD'`).

**B** Copy PATROLDB into a system proclib data set, where it can be started as a started task.

**C** Define the proclib name to RACF as a started task.

**D** Start the PATROLDB member to activate the BMC Admin Server. For a list of available OS/390 console modify and stop commands, see Table 26 on page 162.

4 Enable the option of foreground processing when you run the client.

A Copy BMCAKMFG into a system proclib data set, where it can be started as a started task.

B Define the proclib name to RACF as a started task.

***NOTE***

The STEPLIB must point to only APF-authorized load libraries.

When foreground processing is enabled, you will be prompted to perform a particular function in either foreground mode or batch mode. When you indicate foreground mode, the server starts the BMCAKMFG task (or the task that is specified in the FOREGROUND.STARTEDPROC parameter in the INI#ACV member), and the foreground function is performed.

### Where to Go from Here

Verify the setting for your host-code page. For more information, see "Confirming the Host-Code Page for the BMC Admin Server" on page 175.

## Configuring APPC SNA

During the installation of the BMC Admin Server, if you chose a communication protocol of APPC SNA instead of TCP/IP, you must configure APPC SNA. Configuring APPC connectivity for use with the BMC Admin Server is a three-part process that involves setting up the following components:

| Component | Page |
|---|---|
| BMC Admin Server | 162 |
| Microsoft SNA Gateway Server | 169 |
| SNA client | 173 |

# Setting Up the BMC Admin Server

In this task, you will set up the BMC Admin Server for the APPC SNA communications protocol. The BMC Admin Server uses the APPC/MVS Server Facilities introduced in MVS/ESA SP 4.3.0. In this section, the term APPC/MVS is used to represent the APPC/MVS Server Facility executing on OS/390, and the term server refers to the BMC Admin Server. This is the first task in the APPC SNA configuration process.

### Before You Begin

The server selects inbound conversations on the basis of the named application, TP name, the location of the server in the network, and the LU name.

- The TP name (1 to 64 characters) describes the server's address space. Inbound requests are directed to this location. The TP name can be the started task name or job name of the server's address space.

- The logical unit (LU) name is a unique name that is defined to the VTAM network for the server application.

When APPC/MVS receives a client request for a conversation, APPC/MVS checks whether any address space has registered to serve the request. If so, APPC/MVS assigns the request to an allocation queue. The server can then select the request from the queue for processing. When the server selects the request from the queue, it receives the conversation ID, and a conversation with the client begins.

Because APPC/MVS requires the server to register and unregister for services, the server must be shut down in an orderly way to be unregistered as an APPC/MVS Server. Cancelling the server is not recommended. You can use an MVS console STOP command (P) to stop the server. Alternatively, you can use an MVS modify STOP command (F) to shut down the server task in an orderly fashion. For a list of available MVS console commands, see Table 26.

**Table 26 OS/390 Commands (Part 1 of 2)**

| OS/390 Commands | Description |
|---|---|
| S *jobname* | starts the job or task named by the jobname parameter |
| P *jobname* | stops the job or started task named by the jobname parameter |
| F *jobname*, DRAIN | toggles the DRAIN status flag<br><br>When DRAIN is enabled, new clients are prevented from attaching to the server and the server shuts down automatically when all active tasks are complete. |
| F *jobname*, LIST | lists active tasks that are running in the server |
| F *jobname*, STATUS | displays the current status information for the server |
| F *jobname*, STOP | stops the job or started task named by the jobname parameter |

**Table 26 OS/390 Commands (Part 2 of 2)**

| OS/390 Commands | Description |
|---|---|
| F *jobname*, TERM *xxx* | terminates the task where *xxx* is the key<br><br>The key is found by issuing the LIST command. |
| F *jobname*, TRACE | toggles the Global Trace variable |
| F *jobname*, TRCAGENT | toggles the Trace Agent variable |
| F *jobname*, TRCSERV | toggles the Trace Server variable |

### To Set Up the BMC Admin Server

**1** Define an APPC logon mode in the VTAM logon mode table.

A logon mode is a set of parameters that determine the characteristics of the communication session between the client and the server. The person who is responsible for setting up the MVS system's network definitions defines the logon mode. Typically, this person is familiar with making the network definitions available to VTAM.

An installation can create several logon mode tables that contain varying communication characteristics for the MVS VTAM network. The logon mode tables are assembled and link edited to `SYS1.VTAMLIB`. All the modes that the server LU uses should be contained in the table and specified in the server's LU APPL definition statement.

Figure 44 on page 164 shows a sample logon mode table that contains three logon modes, including the required SNASVCMG entry. In the sample LU definition, the specified logon mode table was assembled and linked as ACVAPPC.

***NOTE***

This example is available in `SYS1.SAMPLIB` in member ATBLMODE. It can be assembled and linked by using member ATBLJOB. The server can use the sample logon mode table that IBM supplies. You can also use an existing logon mode table containing the entry that the server uses, APPCPCLM.

**Figure 44 Sample Logon Mode Definition**

```
LOGMODES MODETAB
         EJECT
*********************************************************************
TITLE 'SNASVCMG'
*********************************************************************
*LOGMODE TABLE ENTRY FOR RESOURCES CAPABLE OF ACTING
*AS LU 6.2 DEVICES
*REQUIRED FOR LU MANAGEMENT
*********************************************************************
SNASVCMG MODEENT LOGMODE=SNASVCMG,FMPROF=X'13',TSPROF=X'07',        *
               PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1',         *
               RUSIZES=X'8585',ENCR=B'0000',                        *
               PSERVIC=X'060200000000000000000300'
*********************************************************************
TITLE 'APPCPCLM'
*********************************************************************
*LOGMODE TABLE ENTRY FOR RESOURCES CAPABLE OF ACTING
*AS LU 6.2 DEVICES
*FOR PC TARGET
*IN THIS EXAMPLE THE DEFAULT RU SIZE FOR OS/2 (1024) IS USED
*********************************************************************
APPCPCLM MODEENT LOGMODE=APPCPCLM,                                   *
               RUSIZES=X'8787',                                      *
               SRCVPAC=X'00',                                        *
               SSNDPAC=X'01'
*********************************************************************
TITLE 'APPCHOST'
*********************************************************************
*LOGMODE TABLE ENTRY FOR RESOURCES CAPABLE OF ACTING
*AS LU 6.2 DEVICES
*FOR HOST TARGET
*IN THIS EXAMPLE RU SIZE OF 4096 IS USED
*********************************************************************
APPCHOST MODEENT LOGMODE=APPCHOST,                                   *
               RUSIZES=X'8989',                                      *
               SRCVPAC=X'00',                                        *
               SSNDPAC=X'01'
 MODEEND
END
```

2 Define the local LU to VTAM.

A VTAM application (APPL) definition statement in `SYS1.VTAMLST` defines an APPC/MVS local LU to VTAM. This definition must be made by the person who is responsible for implementing VTAM network changes for OS/390.

The APPL statement defines the following properties of the LU:

- names the local LU
- identifies the local LU as a type 6.2
- sets the default parameters for the LU
- specifies the name of the logon mode table that contains the logon modes that the LU uses

To ensure the use of subtasking, verify the VTAM LU definition (`DSESLM=10`). The number 10 represents the number 16 in hexadecimal numbering.

Figure 45 shows a sample local LU definition to VTAM.

**Figure 45 Sample Local LU Definition for VTAM**

```
ACVLU01 APPL   ACBNAME=ACVLU01,
               APPC=YES,C
               AUTOSES=0,C
               DDRAINL=NALLOW,C
               DLOGMOD=APPCPCLM,C
               DMINWNL=5,C
               DMINWNR=5,C
               DRESPL=NALLOW,C
               DSESLIM=10,C
               LMDENT=19,C
               MODETAB=ACVAPPC,C
               PARSESS=YES,C
               SECACPT=CONV,C
               SRBEXIT=YES,C
               VPACING=1
```

***NOTE***

A sample local LU definition exists in member APPLACV1 of the *HLQ*.CNTL data set. You must make this LU active to VTAM before you add the LU to APPC/MVS.

**3** Define the local LU to APPC/MVS.

To define a local LU as a server to APPC/MVS, update the APPCPM*xx* configuration member in `SYS1.PARMLIB` by adding an `LUADD` statement for the LU of the server. The configuration member names the LUs and respective administrative VSAM KSDS. The person who is responsible for updating the OS/390 system or VTAM network definition files must make this update.

The LU that is defined for the server does not have a TP Profile data set, nor does it require the use of a site information table. However, a reference to the system-level TP Profile data set that accesses only the database token from that TP Profile data set is required. Thus, an entry for the server is not required in the specified TP profile data set, but a reference to the system level TP Profile data set is needed as part of the **LUADD** definition statement.

The LU application should already be defined and active to VTAM. The LU name that is used in the VTAM application definition must match the ACBNAME operand that is used in the **LUADD** statement. Once defined, the APPC address space must be started with the appropriate parameters to include the configuration file with the **LUADD** statement for the server.

Figure 46 shows a sample **LUADD** statement for defining the local LU to APPC/MVS. The example can be added to an existing APPCPM*xx* configuration member or used in a new configuration member. Then the example can be dynamically added to the APPC address space by using the SET APPC=*xx* MVS command.

***NOTE***

The *HLQ*.CNTL data set contains a sample APPCPM*xx* member.

**Figure 46 Sample Local LU Definition for APPC/MVS**

```
LUADD  ACBNAME(ACVLU01)
       NOSCHED
       TPDATA(SYS1.APPCTP)
       TPLEVEL(SYSTEM)
```

**4** Provide APPC parameters to the server.

The server requires several parameters that have been defined to APPC/MVS and VTAM. The values of these parameters are described to the server through an initialization (INI) file that is specified by the BMCIPROF DD statement in the server JCL. The parameters in this file are initialized during the installation of the server. If changes to the parameters are required, you can modify them by manually editing the INI file.

Figure 47 shows a sample BMC Admin Server configuration file.

**Figure 47 Sample APPC for MVS Configuration File (Part 1 of 2)**

```
sbiDBS.MaxAgents =16
sbiDBS.AutoStart =1
sbiDBS.Server1 =MVSAPPC
sbiDBS.MAXADDR =16
sbiDBS.CP =CP500

MVSDB2.AccessDriver =SBIDB2M
MVSSPD.AccessDriver =SBISPDM
MVSJZS.AccessDriver =SBIJZSM
MVSFILE.AccessDriver =ACVFILM

MVSAPPC.ServerEnabled =1
MVSAPPC.OperatingMode =SERVER
MVSAPPC.LocalMethod =MultiplexSVP
```

**Figure 47 Sample APPC for MVS Configuration File (Part 2 of 2)**

```
MVSAPPC.AccessDriver =SBIRTMM
MVSAPPC.ProtocolDriver =SBIAPPCM
MVSAPPC.TPname =APPCACV1
MVSAPPC.MODEname =APPCPCLM
MVSAPPC.LUname =ACVLU01
MVSAPPC.packetsize =8192
MVSAPPC.receivetimeout =0
MVSAPPC.transmitttimeout =0
MVSAPPC.SASDebug =0

JSI.JSISSID =JSI1
JSI.JESSSID =JES2
JSI.JSIDLL =00
JSI.SPOOLBYOWNER =0

FOREGROUND.STARTEDPROC=BMCAKMFG

SCRIPT.FILE =BMCPERF.V62.SCRIPT

DOPTS.DBAL_DIRECTP =BMCPERF.V62.LOAD(KGCDOPT)
```

Table 27 describes some of the important configuration parameters, which you may need to modify manually.

**Table 27 APPC/MVS Configuration Parameter Descriptions (Part 1 of 2)**

| Parameter | Description |
|---|---|
| AccessDriver | name of the RTM driver program<br>The value is SBIRTMM. |
| LocalMethod | indicates multiplexed service provider<br>The value is MultiplexSVP. |
| LUname | the local LU name that has been defined to VTAM for the server |
| MODEname | the default Mode Name table entry<br>The entry should match the DLOGMODE parameter of the APPL definition that is used to define the local LU to VTAM. |
| OperatingMode | indicates operation as an APPC/MVS Server<br>The value is SERVER. |
| Packetsize | size of the data buffer used by the server<br>The default is 8192. |
| ProtocolDriver | name of the APPC/MVS protocol driver program<br>The value is SBIAPPCM. |
| Receivetimeout | This parameter is not specified. The value is 0. |
| SASDebug | flag that disables (or enables) the SAS/C Debugger<br>This flag should be set to 0. |
| ServerEnabled | flag that enables (or disables) the server<br>This flag should be set to 1. |

**Table 27 APPC/MVS Configuration Parameter Descriptions (Part 2 of 2)**

| Parameter | Description |
|---|---|
| TPname | name that is used to describe this server to APPC/MVS<br>The Tpname is a 1 to 64 character name that describes the server's address space. This name may or may not be the started task name or the job name of the server. |
| Transmittimeout | This parameter is not specified. The value is 0. |

All APPC/MVS parameters have a prefix of MVSAPPC. The SBIDBS.SERVER1 parameter must reflect the type of server that is implemented. For APPC/MVS, the type of server should be MVSAPPC. The other parameters within the configuration file are not related to APPC/MVS, so they do not need to be changed.

## Where to Go from Here

After you set up the BMC Admin Server, you set up the SNA Gateway Server to connect to the BMC Admin Server. For more information, see "Setting Up the SNA Gateway Server" on page 169.

# Setting Up the SNA Gateway Server

In this task, you will set up the SNA Gateway Server for connectivity to the BMC Admin Server. The BMC Admin Server uses the APPC/MVS Server facilities to support an APPC independent LU 6.2 connection to the SNA Gateway Server. Several steps are required to configure the SNA Gateway Server to support this APPC connection. This is the second task in the APPC SNA configuration process.

### Before You Begin

Complete the steps in "Setting Up the BMC Admin Server" on page 162.

### To Set Up the SNA Gateway Server

**1** Define the APPC LU to VTAM.

To define the APPC LU in a VTAM major node, you can define an LU with LOCADDR set to 0 and a LOGMODE parameter that supports APPC. For the PU macro, add the CPNAME parameter and set it equal to the Control Point Name value for the SNA Gateway Server (see step 6 on page 171).

The example of an APPC LU definition for an SNA Gateway Server in Figure 48 defines an APPC LU named MSAUL100. In this example, the MVS VTAM system programmer has created a VTAM logon mode table called ACVAPPC with an APPC-capable logon mode entry called APPCPCLM.

**Figure 48 Sample APPC LU Definition for an SNA Gateway Server**

```
MSAUP100 PU ADDR=04,                                                    X
            CPNAME=AUS3,                                                X
            DLOGMOD=N32702,                                             X
            PUTYPE=2,                                                   X
            MAXDATA=1024,                                               X
            MAXOUT=7,                                                   X
            MAXPATH=1,                                                  X
            IDBLK=05D,                                                  X
            IDNUM=B0927

MSAUL100 LU LOCADDR=0,ISTATUS=ACTIVE,MODETAB=ACVAPPC,DLOGMOD=APPCPCLM
```

**2** Define a local APPC LU to the SNA Gateway Server by performing the following actions at the SNA Gateway Server console:

**A** In the **Servers and Connections** window, select the server.

**B** From the Edit menu, choose **Insert**.

**C** Select **APPC (LOCAL)**.

**D** Specify the following APPC (LOCAL) properties:

1. Type the LU Alias and LU Name. These properties are the same as those in the VTAM major node (MSAUL100 in Figure 48 on page 169).

2. Type the network name. This network is the same network as the VTAM where the LU Alias resides.

3. Deselect the **Enable Automatic Partnering** option.

4. Select the **Member of Default Outgoing Local APPC LU Pool** option.

**3** Define a remote APPC LU to the SNA Gateway Server by performing the following actions at the SNA Gateway Server console:

**A** In the **Servers and Connections** window, select the connection.

**B** From the Edit menu, choose **Insert**.

**C** Select **APPC (REMOTE)**.

**D** Specify the following APPC (REMOTE) properties:

1. Type the LU Alias and LU Name. These properties are the same as those in the BMC Admin Server configuration file as parameter MVSAPPC.LUname (ACVLU01 in Figure 47 on page 166). These properties were defined to VTAM in Figure 45 on page 165.

2. Type the network name. This property is the name of the VTAM where the BMC Admin Server resides.

3. Select the **Supports Parallel Sessions** option.

4. Deselect the **Enable Automatic Partnering** option.

**E** To partner the local and remote LU, select **Partners** from the APPC (REMOTE) properties.

1. Select Modes and create a logon mode with the same name and characteristics as those used by the Database Administration BMC Admin Server (which is APPCPCLM in Figure 48 on page 169). Use the same RU size as the one that was defined for the mainframe logon mode.

***NOTE***

To allow subtasking or foreground processing, the logon mode definition's maximum number of sessions must be greater than one.

2. Select Add and choose the local LU that you defined in step 2 and the logon mode entry that you defined in step 2 on page 169.

3. When you have finished selecting the local partner, the LU 6.2 Partner LU screen should contain an entry of 1.

**4** Add a CPI-C symbolic destination to the SNA Gateway Server by performing the following actions at the SNA Gateway Server console:

**A** From the Options menu, choose **CPI-C**.

**B** Select **Add** and specify the following properties for the symbolic destination:

1. Select the symbolic destination name that the PC client will use to access this LU. This name can be 1 to 8 characters long. Make a note of this CPI-C Symbolic Destination Name for later use during the client configuration.

2. For the Partner TP Name, select Application and enter the TP name of the BMC Admin Server configuration file as parameter MVSAPPC.TPname (APPCACV1 in Figure 47 on page 166).

3. For the Partner L name, select Alias and enter the BMC Admin Server LU from the configuration file as parameter MVSAPPC.LUname (ACVLU01 in Figure 47 on page 166). This was defined to VTAM in Figure 45 on page 165.

4. For the Mode Name, select the logon mode that is defined for the BMC Admin Server as MVSAPPC.MODEname (APPCPCLM in Figure 47 on page 166). This name corresponds to the DLOGMOD keyword on the LU that was defined to VTAM in Figure 45 on page 165.

**5** Define a default local LU for the SNA Gateway Server by performing the following actions at the SNA Gateway Server console:

**A** Select the SNA Gateway Server Admin Icon.

**B** In the **Servers and Connections** window, select the server.

**C** Select **Users and Groups**.

**D** Double-click the group **Everyone**.

**E** Add the previously defined Local LU alias and Remote LU alias (MSAUL100 and ACVLU01, respectively, in Figure 48 on page 169 and Figure 47 on page 166).

**6** Specify the SNA Gateway Server Control Point Name by performing the following actions at the SNA Gateway Server console:

**A** Select the SNA Gateway Server Admin Icon.

**B** In the **Servers and Connections** window, select the server.

**C** From the Services menu, choose **Properties**.

**D** In the **Server Properties** dialog box, specify the following items:

1. Enter the Network Name. This name is the same as the VTAM where the BMC Admin Server resides.

2. Enter the Control Point Name. This name is the same as the CPNAME parameter for the PU definition in VTAM (AUS3 in Figure 48 on page 169). (See step 1 on page 169.)

### Where to Go from Here

After you set up the BMC Admin Server and the SNA Gateway Server, you set up the SNA client. For more information, see "Setting Up the SNA Client" on page 173.

# Setting Up the SNA Client

In this task, you will set up the SNA client. This is the third task in the APPC configuration process.

### Before You Begin

Before you set up the client, be sure that you completed the steps in "Setting Up the SNA Gateway Server" on page 169.

You must know about the SNA Gateway Server to supply the SNA client with information about the particular transport protocol to be used, as well as the Domain setting and Primary Server name.

### To Set Up the Client

1. On the user's PC, install the Microsoft Windows 95, Windows 98, or Windows NT SNA Client.

2. Use the session configuration tool to configure the APPC SNA host system and session profile. Within the host system configuration section, a selection for APPC SNA is provided.

   Several installation parameters are provided to complete the host configuration. The CPI-C Symbolic Destination Name for APPC services, defined previously in the SNA Gateway Server, is (in most cases) the only parameter that is necessary to identify the BMC Admin Server.

   Additional parameters can be used to selectively override the site information table—CPI-C Symbolic Destination Name table—defined on the SNA Gateway Server. You can use the LU name, MODE name, or TP Name parameter to override the client's CPI-C Symbolic Destination Name table entry. When all the parameters are used together, the referenced CPI-C Symbolic Destination Name table is bypassed.

   Table 28 on page 174 describes these installation parameters.

**Table 28 Installation Parameters**

| Parameter | Description |
|---|---|
| Symbolic Destination Name | *(required)* provides the CPI-C Symbolic Destination Name that was defined in the SNA Gateway Server to describe the BMC Admin Server application<br><br>This parameter must match the exact name that is used in the SNA Gateway Server setup. |
| LU Name | *(optional)* describes the APPC LU name to be used when establishing the conversation with the BMC Admin Server<br><br>This value should be specified as a fully qualified SNA LU name. A qualified LU name consists of the network name separated from the logical unit name by a period, with each name not exceeding 8 characters. |
| MODE Name | *(optional)* allows an overriding specification to the operating mode-table entry for the connection to the BMC Admin Server |
| TP Name | *(optional)* allows an overriding specification to the teleprocessing program name that is associated with the connection that identifies the BMC Admin Server |

## Where to Go from Here

After you configure the APPC SNA communication protocol, you verify the setting for your host-code page. For more information, see "Confirming the Host-Code Page for the BMC Admin Server" on page 175.

# Confirming the Host-Code Page for the BMC Admin Server

In this task, you will verify the setting for your host-code page. The host-code page setting specifies the table that the application uses to map the EBCDIC codes on the server to the appropriate single-byte ASCII codes on the PC during the transfer of data.

1 Edit the INI#ACV file.

2 Set the value of the sbiDBS.CP variable in the INI#ACV file to one of the host-code page values in Table 29.

***NOTE***

The default value for the sbiDBS.CP variable is CP037.

**Table 29 Code Page Values**

| Host-Code Page Value | Language |
|---|---|
| CP037 | English (US) |
| CP273 | Austrian or German |
| CP277 | Danish or Norwegian |
| CP278 | Finnish or Swedish |
| CP280 | Italian |
| CP284 | Spanish |
| CP285 | English (England) |
| CP297 | French |
| CP500 | International |

3 Start PATROLDB to activate the BMC Admin Server.

## Where to Go from Here

After you confirm the host-code page, you determine whether to enable the use of secondary authorization IDs for each client. For more information, see "Enabling the Use of Secondary Authorization IDs" on page 176.

# Enabling the Use of Secondary Authorization IDs

In this task, you will enable the use of secondary authorization IDs for the BMC Admin Server. The sample connection exit that is supplied by IBM builds a list of secondary authorization IDs that is based on the user ID associated with each client for the BMC Admin Server. This sample exit is distributed in the DB2 DSNSAMP data set as member DSN3SATH.

***NOTE***

If your DB2 subsystems do not share a single *HLQ*.SDSNEXIT data set, your DB2 system administrator should perform the following steps for each subsystem.

1 Rename member DSN3@ATH in the *HLQ*.SDSNEXIT data set to another name.

2 Edit the member DSN3SATH in the DB2 DSNSAMP data set to remove the comments in section SATH024.

3 Assemble and link member DSN3SATH using the IBM-supplied JCL member DSNTIJEX.

   DB2 creates DSN3@ATH.

4 Cycle DB2.

### Where to Go from Here

After you enable the use of secondary authorization IDs, you install the client. For more information, see "Installing the Client" on page 177.

# Installing the Client

This section provides information about installing, configuring, and starting the client for SQL Explorer. The client serves as a graphical front-end to the BMC Admin Server. The BMC Admin Server runs on OS/390 as a started task and administers requests to SQL Explorer.

## Prerequisites

Before you can install the SQL Explorer client, you must have installed and configured the BMC Admin Server. For information about the BMC Admin Server, see "Performing the Post-Installation Tasks for the BMC Admin Server" on page 157.

You need the following items to install the client:

- BMC Admin Server configuration settings
- sufficient disk space on your client system
- all applications closed down prior to installing the client

To ensure that the network is configured properly, see "Verifying Server Networking" on page 178.

## Supported Environments

The client includes domestic and international versions, which are categorized as follows:

- U.S. English data (US7ASCII), which is single byte

  Sorting is based on ASCII code page values.

- European data support, which includes support for extended character sets in any single-byte, left-to-right language and support for local date and time formats

***NOTE***

Host-code page specification is required as part of the server installation. For more information, see "Confirming the Host-Code Page for the BMC Admin Server" on page 175.

- ability to work with any supported local language in all parts of the product, including meta objects such as filter names, session names, and catalog data

- support for the creation and management of any persistent object in the user's native language

Table 30 summarizes the installation tasks for the SQL Explorer client.

**Table 30 SQL Explorer Client Installation Tasks**

| Task | Page |
|---|---|
| Verifying Server Networking | 178 |
| Selecting the Type of Installation<br>■ Installing a Client to Run Locally<br>■ Installing the Client on a Network Drive<br>■ Installing a Client (Command-Line Interface)<br>■ Installing the Client by Using Distribution Software | <br>180<br>182<br>183<br>185 |
| Verifying Installed Files | 186 |
| Troubleshooting the Client Installation | 186 |

# Verifying Server Networking

In this task, you will verify that your network is working properly.

1 From a DOS prompt, enter **ipconfig/all** (Windows NT) or **winipcfg/all** (Windows 98 or Windows 2000).

Your host name and IP address appear, as shown in the example in Figure 49.

**Figure 49 IP Configuration**

```
Windows NT IP Configuration:
Host Name......:yourname.yourcompany.com
.
.
DHCP Enabled.....:No
IP Address.......:172.18.22.15
```

2 From a DOS or command prompt, enter **ping** ***server***, where server is the location of the BMC Admin Server.

If the **ping** command returns the message `Bad IP address` *server* or `Request timed out`, you can continue with the installation. However, you must resolve this network problem before you can use the client

# Selecting the Type of Installation

To meet the specific needs of your site, you can select from the types of client installations that are shown in Table 31.

**Table 31 Client Installation Options**

| Installation Option | Description and Benefit | Reference |
|---|---|---|
| install to a local hard drive | installs the specified products to a local hard drive<br><br>After the products are installed, you can remove the CD from the CD-ROM drive. | "Installing a Client to Run Locally" on page 180 |
| copy the installation image to a network drive and then install the client to the local hard drive | copies an image of the installation from the CD to a resource from which other users can install the client to their local hard drive | "Installing the Client on a Network Drive" on page 182<br><br>"Installing a Client to Run Locally" on page 180 |
| "silent" installation from a command prompt | installs the client from a command prompt with minimal user interaction | "Installing a Client (Command-Line Interface)" on page 183 |
| install by using distribution software | installs the client to every workstation to which you have access without the need to leave your computer | "Installing the Client by Using Distribution Software" on page 185 |

# Installing a Client to Run Locally

In this task, you install the client on your hard drive to run locally.

***NOTE***

This task uses D for the CD drive. If your computer uses a different letter, substitute the correct drive letter.

1 Insert the Administrative Products for DB2 CD into the client's CD drive.

The Setup program launches automatically.

2 Read the Welcome page, and click **Next** to continue.

***NOTE***

Use the **Next** and **Back** buttons to navigate through the Setup program. To continue, click **Next**. To go back and undo a selection, click **Back**.

3 On the User Information page, enter your name and company name, and then click **Next**.

4 On the Choose Destination Location page, review the installation destination location:

- If you prefer a different location, click **Browse** and select an appropriate location. Click **OK**. Then click **Next**.
- To accept the default location, click **Next**.

***NOTE***

If a current version of the client is installed or if a version of the client that is earlier than the current version is installed and you choose to install the client in the same directory, a warning is displayed. You can disregard the warning and install the client in the same directory, or you can choose another location in which to install the client.

5 On the Select Components page, select the client to install.

   A Ensure that the Space Required does not exceed the Space Available. If it does exceed the available space, click **Disk Space** and select a new drive that contains the appropriate amount of space. Click **OK**.

     The new drive location appears in the Destination Folder.

   B Click **Next** to continue.

6 On the Start Copying Files page, verify that the displayed installation options are correct. Click **Next** to begin the installation, or click **Back** to change the installation options.

7 When the installation is complete, click **Finish**.

### Where to Go from Here

After you install the client, you can verify the installed files. For information, see "Verifying Installed Files" on page 186.

# Installing the Client on a Network Drive

In this task, you provide full access to the files on the CD by copying the installation image from the CD to a shared network drive and then installing the product locally. This option provides anyone who wants to install the client on their local hard drive full access to the range of product offerings.

***NOTE***

This task uses ***n*** for the network drive. If your network drive is mapped to another letter, substitute the correct drive letter.

1 Insert the Administrative Products for DB2 CD into the client's CD drive.

   The Setup program launches automatically.

2 Click **Cancel** and then click the **Exit Setup** button.

3 From Windows Explorer, choose the CD drive and select all of the files on the drive. Copy the highlighted files to a shared network drive.

4 From Windows Explorer, double-click **setup.exe** from the location on the network where the installation files reside. Alternatively, click the **Start** button and choose **Run**. Enter *n*:*install_dir***setup.exe** in the Run dialog box.

   The Welcome page of the Setup program is displayed.

5 Follow 2 through 7 in the task "Installing a Client to Run Locally" on page 180.

### Where to Go from Here

After you install the client, you can verify the installed files. For information, see "Verifying Installed Files" on page 186.

# Installing a Client (Command-Line Interface)

In this task, you install the client by using the command-line interface. The setup command-line interface is provided as a consistent and faster means to install the client. Before you use the command-line interface, you must edit the initialization file to make product selections and to specify directory locations for the files. When you complete this task, you can use this initialization file for every installation in your organization. This type of installation ensures that all users who are connected to a network install the same set of products by entering a single command.

1 Copy the client images to your hard drive or to a shared network drive. The client images are located in the **client** directory on the CD.

2 Modify the **PDB_Install.ini** file to make product and directory selections. When editing the file, specify 0 to disable a selection and specify 1 to enable a selection. The only requirement when editing this file is that you must select a product in the `[Selections]` section.

Figure 50 shows an example **PDB_Install.ini** file. In this example, the user selected the SQL Explorer product and specified **c:\pdbclient\7.1.01** as the installation folder.

**Figure 50 Modifying the PDB_Install.ini File (Client Installation)**

```
[Selections]

CHANGE MANAGER for DB2 for OS390=0
ALTER for DB2 for OS390=0
SQL Explorer for DB2 for OS390=1

[Information]
User Name=BMC Customer
Company Name=BMC Customer

[Directory]
InstallFolder=c:\pdbclient\7.1.01
```

3 From a command prompt, change the current drive and directory to the location to which you copied the client images.

4 Run the command-line "silent" setup command, **setup -s**.

This command accepts the following options:

**setup -s -m** *filename*

**-s** indicates "silent" and **-m** indicates the specification of a MIF filename. The **-m** parameter and filename are optional. The MIF file indicates the status of the installation (successful or unsuccessful). It does not have to currently exist.

***NOTE***

The order of these options is important. Specifying the **-m** option before the **-s** option will not invoke the MIF file.

5 Check the status of the installation to determine if it was successful by locating the MIF file in the **\windows\temp** or **\winnt\temp** directory that you specified in 4.

***NOTE***

An unsuccessful installation may be caused by a shortage of disk space. If you did not specify a MIF file, check the **pdba_out.trc** file in the **\windows** or **\winnt** directory for specific warning or error messages that are associated with the installation.

### Where to Go from Here

After you install the client, you can verify the installed files. For information, see "Verifying Installed Files" on page 186.

# Installing the Client by Using Distribution Software

In this task you will use distributed systems software such as the Microsoft SMS product (or any other product that supports packages) to install the client on every desktop in your organization to which you have access. When combined with the consistency of the command-line, silent installation, this means of product distribution provides a fast, consistent approach to updating and distributing software.

1 Copy the client images to your hard drive or to a shared network drive. The client images are located in the **client** directory on the CD.

***NOTE***

Copy the client images to a directory that is different from the directory to which you copied the server images.

2 Modify the **PDB_Install.ini** file to make product and directory selections. When editing the file, specify 0 to disable a selection and specify 1 to enable a selection. The only requirement when editing this file is that you must select a product in the `[Selections]` section.

See Figure 50 on page 183 for an example of a **PDB_Install.ini** file.

3 Run the distributed system software package at your site, making the necessary selections as requested. For example, using the Microsoft SMS product to distribute the installation, you should perform the following steps:

- create an SMS package by using the **setup.pdf** file (included in the directory to which you copied the Database Administration product images)
- schedule an SMS job by using the package that was created using the **setup.pdf** file
- ensure that the client receives and runs the package

### Where to Go from Here

After you install the client, you can verify the installed files. For information, see "Verifying Installed Files" on page 186.

# Verifying Installed Files

The directories and files that are listed in Table 32 are installed on the client (by default, on the C drive). During installation, you can specify a particular directory to which to install the files. By default, this directory is **Program Files\BMC Software\PATROL DB-Admin Client**.

**Table 32 Client Installation Directories**

| Directories and Files | Description |
|---|---|
| DB2 OS390 | client executables, DLLs, common executables, library files, and help files |
| DB2 OS390\bin\charmaps | character maps |
| DB2 OS390\bin\en_us.iso88591 | help and message files |
| DB2 OS390\bin\icons | icons |
| DB2 OS390\bin\iconv | code page conversion tables |
| DB2 OS390\bin\locale | installed locales, function and format tables |
| DB2 OS390\config | client configuration directory |
| DB2 OS390\work | work directory |

# Troubleshooting the Client Installation

If your client installation stops abnormally, you should delete any temporary directories and files that the installation process created before it terminated. The installation process creates the following temporary directory and files:

**~istmp***x***.dir** (where *x* is a number)
**~ins0433.~mp**
**~isz0433.~mp**

If your **TEMP** environment variable is set, you can find these files in the **\temp** directory. If your **TEMP** environment variable is not set, look for these files in the **\windows** or **\winnt** directory.

# Starting and Configuring the Client

This section provides information about starting, stopping, and configuring the client. See the online Help for complete instructions about defining hosts and creating subsystem connections.

Table 33 summarizes the tasks for starting and configuring the SQL Explorer client.

**Table 33 Tasks for Starting and Configuring SQL Explorer Client**

| Task | Page |
|---|---|
| Starting the Client | 188 |
| Stopping the Client | 189 |
| Configuring the Client | 190 |

# Starting the Client

In this task, you will start the client.

To start the client, double-click the product icon in the PATROL DB-Admin Client 1.7.B0 OS390 program group.

The PATROL Database Administration window appears.

## Stopping the Client

In this task, you will stop the client.

1 Make the PATROL Database Administration window active.

2 Choose **Exit** from the **File** menu.

# Configuring the Client

In this task, you will configure the client. After you install the server and the client, you must configure the client before you can use the product.

**1** Start the client.

**2** Define hosts or servers.

A host or server is the OS/2,OS/390 system that performs the BMC Admin Server operations. Each host or server has both a BMC Admin Server and at least one DB2 subsystem installed on it. Identifying an available host or server to the client is called defining a host or server.

You must define at least one host or server to use the client. You should define a separate host or server for each system that you want to use as a server for the client.

**3** Create subsystem connections.

When you start a connection, you use a subsystem connection to specify the details for that connection. OS/2, For DB2 for OS/390 connections, the subsystem connection specifies which client, host, DB2 subsystem, and TSO user ID to use during that connection.

If you plan to connect to different combinations of clients, hosts, and databases, you should create a separate connection profile for each possible combination. The name of the subsystem connection must be unique even though multiple connections can use the same host.

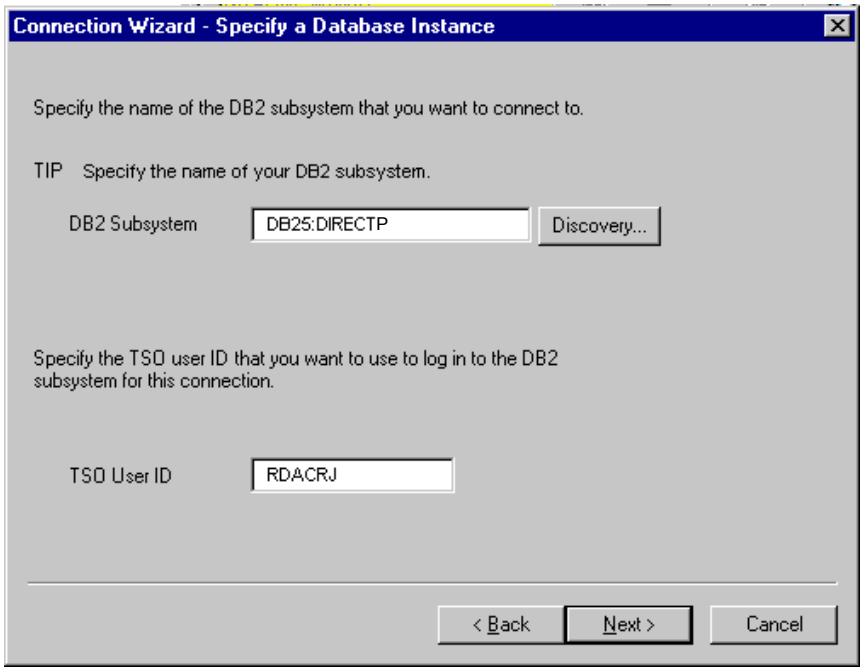
***NOTE***

Client configuration is not necessarily a one-time activity. At some point in the future, you might need to modify your hosts or subsystem connections. Use the Connection Manager any time that you need to add or change a host or subsystem connection.

The DB2 subsystem name that you specify during the client configuration must be the same as the nickname specified in the INI#ACV file. Whereas you specify the name of the subsystem with an underscore (_) in the INI#ACV file, you must enter the name in the Connection Wizard screen during the client configuration with a colon (:).

Figure 51 on page 191 illustrates that the DOPTs nickname is entered as DB25:DIRECTP, replacing the underscore (_) with a colon (:), when the client is installed on the user's computer.

**Figure 51 Connection Wizard Screen**




See the Help for complete instructions about defining hosts and creating subsystem connections.

## Where to Go from Here

After starting and configuring the client, you are ready to connect to a database and begin using it. To use the product, see the *SQL Explorer for DB2 User Guide* or the online Help for more information.

# Maintaining the Client

After you install and configure the client, you might need to upgrade or change the client.

Table 34 summarizes the tasks that are used to maintain the SQL Explorer client.

**Table 34 Maintenance Tasks for the SQL Explorer Client**

| Task | Page |
|---|---|
| Adding a Client | 193 |
| Uninstalling a Client (GUI) | 193 |
| Uninstalling a Client (Command-Line Interface) | 194 |
| Reinstalling a Client | 195 |

# Adding a Client

In this task, you will add a client.

1 Run the Setup program as you normally would for the installation type that you want to perform. See "Selecting the Type of Installation" on page 179 for a list of the types of client installations.

2 Select the new clients that you want to install.

3 Clear the selection for those clients that are already installed.

***NOTE***

The disk space requirements listed in Table 23 on page 156 are for an initial installation. Disk space requirements for additional clients are reduced by the amount of disk space that you used for the initial installation.

# Uninstalling a Client (GUI)

In this task, you will uninstall one or more of the clients. When you uninstall a client, all installed client files are deleted, but any saved work files remain.

1 From Windows, click the **Start** button.

2 Choose **Settings => Control Panel**.

3 Double-click the **Add/Remove Programs** icon.

***NOTE***

On Windows 2000, use the Change/Remove Programs utility. Select the programs to remove and click the **Change/Remove** button.

4 Select the PATROL DB-Admin Client 1.7.B0 OS390.

5 Click the **Add/Remove** button.

6 Click **OK**.

# Uninstalling a Client (Command-Line Interface)

In this task, you will uninstall a client by using the command-line interface.

From a command prompt, run the command-line "silent" setup command, **setup**, located in the client images folder that you copied to your hard drive.

This command accepts the following options:

**isuninst -f**"*pathname*\pdba_log.isu"

**-f** indicates the location of the **pdba_log.isu** log file and *pathname* indicates where the client was installed. The **pdba_log.isu** log file is created during the installation. The installation program uses the file to perform cleanup tasks.

***NOTE***

Do not include a space between the **-f** option and the first quotation mark (").

# Reinstalling a Client

In this task, you will reinstall a client. You reinstall the client when you want to change the existing installation or if files in the client directories were deleted or corrupted.

1 Use the same installation instructions that you used for the earlier installation (see "Adding a Client" on page 193).

   The program prompts you to confirm information that you provided during the earlier installation.

2 Verify the installed files.

***NOTE***

The disk space requirements in Table 23 on page 156 are for an initial installation. Disk space requirements for a reinstallation are reduced by the amount of disk space that you used for the initial installation.

### Where to Go from Here

After you reinstall the product, you can start and configure the client. See "Starting and Configuring the Client" on page 187.

Chapter 4

# SmartDBA Post-Installation Procedures

The UIM (User Interface Middleware) server and the SmartDBA console are common to a family of BMC Software products. The application server is used by SmartDBA System Performance. This chapter contains information about the UIM server, the application server, and the console, and includes the following topics:

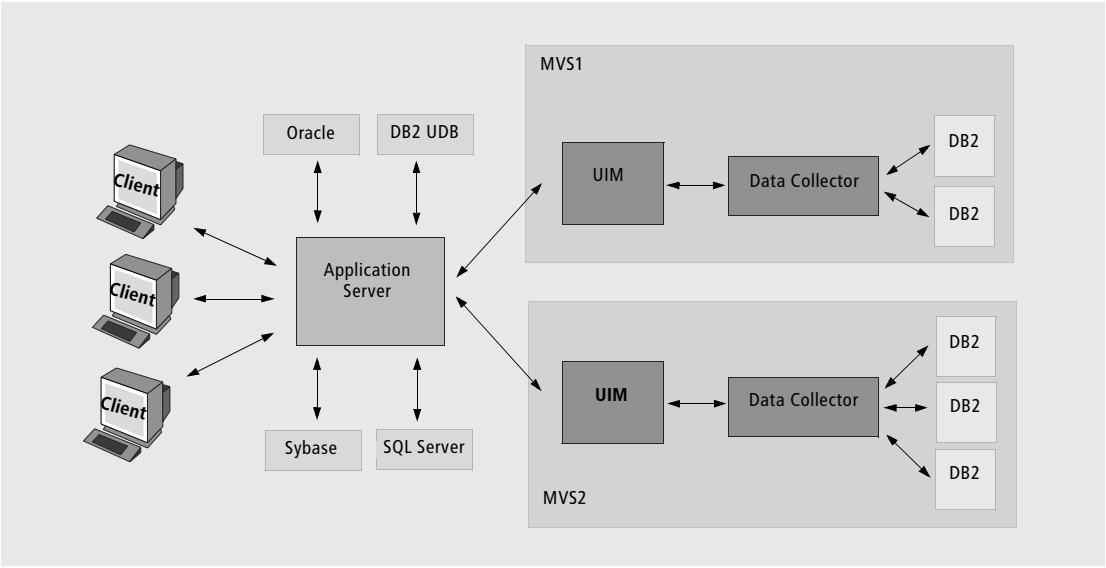
# Overview

The SmartDBA System Performance solution includes a graphical interface in addition to the traditional ISPF interface. This graphical interface has the same look and feel as the other BMC Software SmartDBA products. It has been designed to supplement the information provided on the ISPF interface with the use of graphics to assist in the interpretation of data.

All components of this feature are installed on MVS and can be accessed from Windows NT, Windows XP, and Windows 2000. The SmartDBA System Performance graphical interface uses the same data collection facilities as the common System Performance and Pool Advisor reports.

Figure 52 illustrates the components of the SmartDBA System Performance graphical interface.

**Figure 52 SmartDBA Architecture**



# UIM Server

The UIM (User Interface Middleware) server is a TCP/IP application that facilitates communication between clients and BMC Software products that are running on the mainframe.

The UIM server is installed on the mainframe. During the UIM server installation, the sample procedure is copied, customized, and saved in your sample library.

## UIM Server Components

Table 35 lists the components that are placed on the mainframe when the UIM server is installed.

**Table 35 UIM Server Components**

| Component | Description |
|---|---|
| Load Library | contains the UIM server and product execution code |
| Content File | contains the code and files that get downloaded to the client during installation of the application server and the console (updates to the client code are applied here) |
| Configuration File | contains common UIM server, console, and product execution parameters that are used during initialization of the UIM server |

## Starting the UIM Server

To start the UIM server, perform the following steps:

1 Start the UIM server started task by issuing the S (START) command from the ISPF SDSF panel (**/S** *uim-server-name*).

2 Verify that the UIM server is running. If the UIM server is not running, you must start it before you can use the console.

3 Review the JESMSGLG SYSOUT file for the following messages:

```
BMC340290I UIM Server, Level v.r.mm mm,dd,yy, initialization
complete!

BMC340122I Ready for MVS Operator Commands
```

# Stopping the UIM Server

***WARNING***

To avoid data loss, notify active users if you must shut down the UIM server.

Stop the UIM server started task by issuing the P (STOP) command from the ISPF SDSF panel (**/P** *uim-server-name*).

# Application Server

You can choose to install the client files on a separate computer from the application server, or you can run them both from the same computer.

By default, the application server can support up to 50 simultaneous connections. However, this number can be influenced by many factors, such as memory, processor speed, network speed, multiple database instance connections, timeouts by the server or client, and server or client request queue handling. Optimizing these factors can increase the number of simultaneous connections supported.

## Application Server Host Requirements

The *application server host* is the Windows computer on which the SmartDBA Console is installed. The application server is listed as BMCAppServer*v.r* in the list of installed services. Table 36 lists the minimum system requirements for the application server host.

**Table 36 Application Server Host Requirements**

| Resource | Minimum Requirements |
|---|---|
| operating systems | ■ Microsoft Windows NT 4.0 with Service Pack 6a<br>■ Microsoft Windows 2000 with Service Pack 1, 2, or 3<br>■ Microsoft Windows XP Professional Edition with Service Pack 1 |
| disk space | 100 MB<br><br>**Note**: The disk space requirements depend on the type of file system on which you are installing the product. Generally, an NTFS file system requires less disk space than a FAT file system. |
| memory | 128 MB RAM (256 MB recommended)<br><br>**Note**: 256 MB RAM is required when running the application server and the client on the same computer. |
| video resolution | SVGA or higher resolution (800 x 600 256 color)<br><br>**Note**: This resolution is required on the application server host only if that computer is also used as a client. |
| network | TCP/IP |

# Installing the Application Server

Use this procedure to install the application server for SmartDBA products. The application server must be installed on at least one computer in your enterprise, and that computer must have TCP/IP connectivity to all SmartDBA product client computers.

When you install the application server, the SmartDBA Console client files are automatically installed. Therefore, you can always launch the console from the application server host. If an earlier version of the SmartDBA Console already exists on the application server host, the installation program upgrades it.

### Before You Begin

Before installing the SmartDBA Console, ensure that the following conditions are met:

- To install these products on Windows NT or Windows 2000, you must have administrator privileges.
- Ensure that all products other than SmartDBA products that use ports are running during installation. Otherwise, the installation program will not detect port conflicts.

  The installation program installs an application server component that uses HTTP port 8082 (by default). If you have other products that use ports running on the host where you install a SmartDBA product, the installation program detects any port conflicts and automatically selects an alternative port during installation.
- The application server host must meet the disk space and memory requirements listed in "Application Server Host Requirements" on page 201.
- You must close all instances of all SmartDBA products, including any remote connections from client computers, before beginning the installation program.

### To Install the Application Server

To install the application server, you need the following installation URL:

http://*server_host_name*:*http_port_number*/dna/getConsole.html

The variables in the URL are defined as follows:

- server_host_name is the name of the host computer on which the UIM server is running.

- http_port_number is the port number that is assigned to the UIM server.

For example: http://syso:9999/dna/getConsole.html

Follow the instructions in the installation program to install and configure the product.

***NOTE***

You should not install the application server to the root directory of your computer.

During the installation, the summary page displays the URL needed to install the console remotely.

After installation, a list of the port values used in the installation is stored in the **install_summary.txt** file, located by default in the installation directory **C:\Program Files\BMC Software\SmartDBA**. Use this file to determine what URL to provide when running and installing SmartDBA products.

# SmartDBA Console

The console resides on the client. It is a Windows application that allows you to manage multiple BMC Software SmartDBA products through one interface.

## Client Requirements

Before installing the console, review the minimum client requirements that are listed in Table 37.

**Table 37 Client Requirements**

| Resource | Minimum Requirement |
|---|---|
| operating systems | ■ Windows NT 4.0 with Service Pack 6a<br>■ Windows 2000 with Service Pack 1, 2, or 3<br>■ Windows XP Professional Edition with Service Pack 1 |
| disk space | ■ 22 MB to install Java Plug-in 1.4.1_02 (if it is not already installed)<br>■ 70 MB to install the client files |
| memory | 128 MB RAM (256 MB recommended) |
| Web browsers | ■ (recommended) Microsoft Internet Explorer 5.0, 5.5, or 6.0 with Java Plug-in 1.4.1_02<br>■ Netscape Navigator/Communicator 4.75, 4.78, or 6.2 with Java Plug-in 1.4.1_02 |
| video resolution | 1024 x 768 or higher |
| network | TCP/IP |

Java Plug-in 1.4.1_02 (International version) is required for the console and is included with the product. At installation, the Java plug-in installation files are placed on the application server host with the product files. Because Java plug-in installation is included with the product, an outside Internet connection to download and install the plug-in on each client is not required.

## Installation URL

To install the console on a client computer, you need the following installation URL:

http://*server_host_name*:*http_port_number*/dna/index.html

The variables in the URL are defined as follows:

- server_host_name is the name of the host computer on which the application server is running.
- http_port_number is the port number that is assigned to the application server.

For example: http://user-nt:8082/dna/index.html

Contact your system administrator to determine which host name and port number are used for the application server.

## Security Requirements

The console uses z/OS authentication. When you launch the console, you must provide a valid RACF or equivalent user ID and password. The security administrator for your site sets up the user ID and password.

The console is equipped with a timeout security feature. During installation, your system administrator sets the amount of time that the console can remain inactive before becoming unavailable.

## UIM Server Verification

Before installing the console, verify that the application server and the UIM server are running See "Starting the UIM Server" on page 199)

# Installing the Console

You install the console on client computers by connecting to the UIM server through a supported Web browser and installing a local client. To permit installation of the client files, the UIM server must be installed on the mainframe.

To install the console on a client computer, perform the following steps:

**1** From a supported Web browser, type the following installation URL:

http://*server_host_name*:*http_port_number*/dna/index.html

For more information about the installation URL, see "Installation URL" on page 205.

***NOTE***

If the application server is not running, the following message is displayed in the web browser:

```
The page cannot be found
```

The application server and the UIM server must be started before you can install the console. For more information, see "Starting the UIM Server" on page 199.

If the Java plug-in is installed, the Client Application Wizard launches. For instructions about installing the console with the Client Application Wizard, go to 8 on page 207.

If the Java plug-in is not installed, the Java plug-in installation prompt is displayed. For instructions about installing the Java plug-in, go to 2.

**2** Install the Java plug-in by completing the following steps.

**A** Download the Java plug-in by clicking the following hyperlink:

**A** Click here for Java 1.4.1_02 Plug-in

**A** The File Download window is displayed.

**B** Click Save.

**C** The Save As window is displayed.

**D** Select a location on your computer to save the Java plug-in installation application.

E Click Save.

F The Save As window is closed.

G Open Windows Explorer, and navigate to the location where you saved the Java plug-in installation application.

H Launch the Java plug-in installation application, by double-clicking j2re-1_4_1_02-windows-i586-i.exe file.

I The Java Runtime Environment, Standard Edition, version 1.4.1_02 installation application is launched.

J Follow the on-screen prompts.

K The Java plug-in is installed, and the Java plug-in installation prompt is displayed again.

L To launch the Java applet for the Client Application Installation Wizard, click the hyperlink in the following sentence:

M `Once you have installed the plug-in, click here to launch Java applet.`

N The Java Plug-in Security Warning dialog box is displayed, and you are prompted to grant a security session to BMC Software. This security session ensures that you have installed a genuine BMC Software product.

3 Install and run the signed applet that is distributed by BMC Software by granting Java plug-in security access.

4 To grant a security session to BMC Software, perform one of the following steps:

5 (recommended) To grant this session and all future sessions, click Grant always.

6 To grant a single session, click Grant this session.

7 The Client Application Installation Wizard is launched.

8 Install the console files on the client:

A To start the Client Installation Wizard, click Next. The License Agreement page is displayed.

B Read the License Agreement, and click Yes to accept. The Choose an Install Location page is displayed.

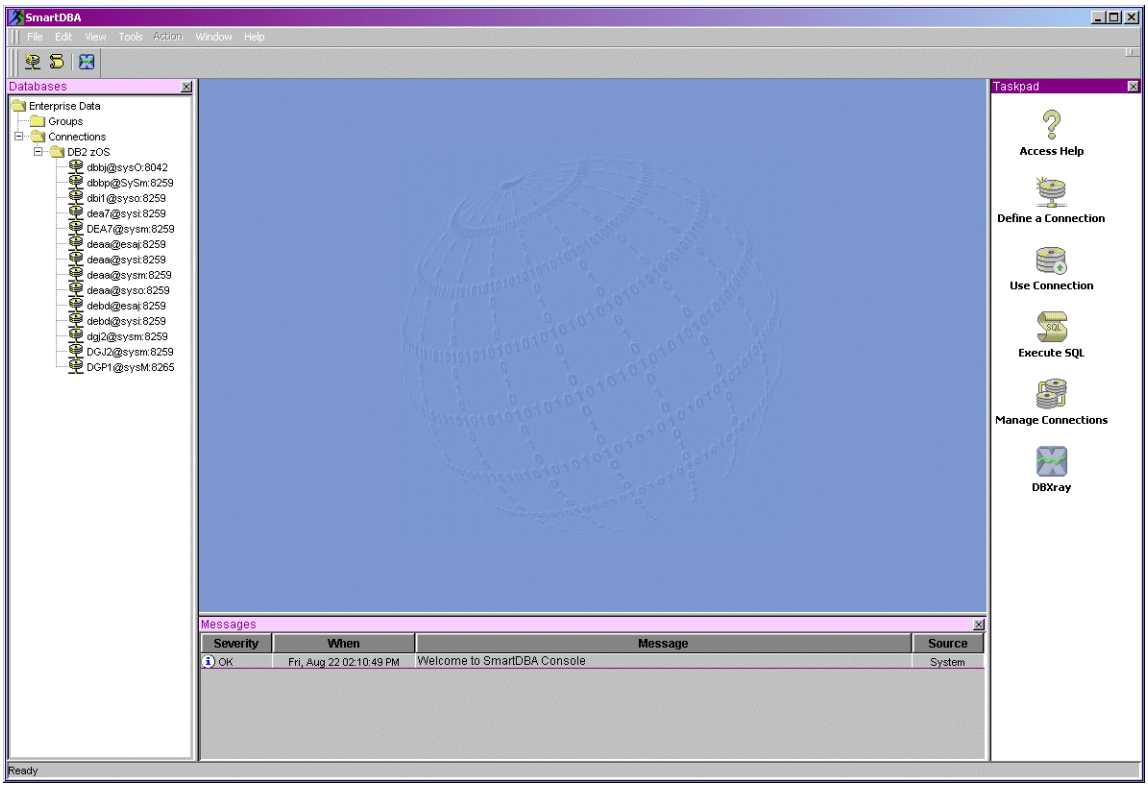
**C** Accept the default install location or select Browse to select a new install location, and click Next. The Choose Program Group page is displayed.

**D** Accept the default group name that is used by Windows or type a new name for the program group, and click Next. The Summary page is displayed.

**E** Review the summary, and click Next.The Install Complete page is displayed.

**F** Select Launch Console, and click **Finish**. The console (Figure 53) is launched.

**Figure 53 SmartDBA Console**



# Uninstalling the Console

To uninstall the console, perform the following steps:

1 Navigate to the Control Panel from your Windows desktop:

1 In Windows NT, 98, or 2000, choose Start => Settings => Control Panel.

1 In Windows XP, choose Start => Control Panel.

2 Navigate to the Add/Remove Programs tab from the Control Panel window:

3 In Windows NT, 98, or 2000, double-click Add/Remove Programs.

4 In Windows XP, click Add or Remove Programs.

5 Select the client for the server host to uninstall (SmartDBA Client for server-host-name_http-port-number).

6 For example: SmartDBA Client for syso_9999

7 Remove the console:

- In Windows NT or 98, click **Add/Remove**.
- In Windows 200 or XP, click Change/Remove.

The client files for the specified server-host-name_http-port-number are removed.

Chapter 5

# OPERTUNE

This chapter provides an overview of OPERTUNE for DB2 and OPERTUNE for MQSeries and provides information on performing the post-installation tasks that are necessary to the successful completion of OPERTUNE installation.

This chapter presents the following topics:

# Overview

OPERTUNE allows dynamic modification of MQSeries subsystems, DB2 subsystems, and DB2 data sharing groups. OPERTUNE has two basic classes of features:

- Parameter elements provide for the modification of subsystem parameters (mostly ZPARMs), and cover items from castout reverse threshold, to dual archiving mode, to buffer pool configuration.
- Operational assists provide extra help with some frequently encountered operational problems such as canceling threads, and maintaining archives.

OPERTUNE's features allow a site to perform the following tasks:

- modify DB2 and MQSeries parameters to relieve current problems or bottlenecks
- dynamically tune subsystems
- adapt resource assignment or allocation to workload fluctuations
- enhance 24-hour-by-7-day continuous operations for subsystems
- enhance automated operations for DB2 and MQSeries
- dynamically add and remove active logs
- tune remote subsystems through VTAM
- test applications with different subsystem parameters without recycling the subsystem
- cancel a thread that is draining resources without cancelling the thread's address space
- tune buffer pool and group buffer pool parameters
- manage subsystem archives

OPERTUNE for DB2 is a component of the System Performance for DB2 solution. System Performance for DB2 lets you optimize and manage current performance while planning for future growth and capacity. This solution improves application performance by providing intelligent real-time management and tuning of DB2 system resources and parameters that can improve performance and reduce end-user response time. This solution combines the features and benefits of MAINVIEW for DB2, Pool Advisor, and OPERTUNE for DB2 to deliver efficient system performance.

# Post-Installation Tasks

When you have used the OS/390 and z/OS Installer to generate and execute installation JCL, you must also perform post-installation tasks to complete the installation and customization process for the OPERTUNE products.

Table 38 summarizes OPERTUNE post-installation tasks.

**Table 38 OPERTUNE Post-Installation Tasks**

| Tasks | Page |
|---|---|
| Copy the OPERTUNE Procedure to a PROCLIB | 211 |
| Invoke the OPERTUNE CLIST or the Common BMCDISPN Panel | 213 |
| Define Security | 214 |
| Create an OPERTUNE System Profile | 216 |
| Start the OPERTUNE Started Task | 216 |
| Prepare ISPF for OPERTUNE Diagnostics | 217 |
| Establish VTAM Communications | 218 |
| Proceed to the OPERTUNE Reference Manual | 218 |

## Copy the OPERTUNE Procedure to a PROCLIB

This task is required. Each maintenance level of OPERTUNE requires only one started task procedure per MVS. The Install System customizes the member DDTPROC in the output JCL data set. Copy the member to a PROCLIB at your installation.

If you are installing a maintenance upgrade, cycle the OPERTUNE started task and any ISPF sessions, using OPERTUNE to activate the new code.

***NOTE***

For the purpose of canceling threads, BMC Software recommends that you run OPERTUNE at a dispatching priority higher than any DB2- or MQSeries-allied address spaces. Code the appropriate DPRTY parameter (for example, DPRTY=(*n*,*m*)) on the EXEC statement of the OPERTUNE procedure.

The procedure uses the following DD statements:

- **DDTPROFS—**Required. References the OPERTUNE profile data set that contains user, system, and security profiles.
- **DDTAUDIT—**Required. Logs the changes made to all subsystems by this OPERTUNE and provides an audit trace.

By default, the log is written to SYSOUT. To write the audit log to DASD, pre-allocate a data set with the following attributes: LRECL=121, RECFM=FB, and DSORG=PS.

If you allocate the data set in the OPERTUNE procedure with DISP=MOD, you *must* periodically check and empty the data set to prevent it from filling up. If you specify DISP=OLD, you must copy the data set each time OPERTUNE is terminated.

If you write the audit log to a data set, specify DCB=BUFNO=1 on the DD statement to prevent buffering from occurring. You must make this specification to be able to view the latest OPERTUNE logged changes through the ISPF Browse option. In addition, if you perform an IPL on the MVS system while OPERTUNE is still up, some OPERTUNE changes may not be logged to the data set.

- DDTTRACE—Optional. Provides internal trace information for diagnostics purposes. Like DDTLOG, these traces could be output to SYSOUT or to DASD. The default is SYSOUT and is recommended. If you want to write the traces to DASD, pre-allocate a data set with the following attributes: LRECL=121, RECFM=FB, DSORG=PS.

- DDTTRACS—Optional. Provides a log to track the security profile created by the OPERTUNE security exit. Like DDTAUDIT, these traces could be output to SYSOUT or to DASD. The default is SYSOUT and is recommended. If you want to write the traces to DASD, pre-allocate a data set with the following attributes: LRECL=121, RECFM=FB, DSORG=PS.

# Invoke the OPERTUNE CLIST or the Common BMCDISPN Panel

This task is required. Each maintenance level of OPERTUNE requires only one CLIST per MVS.

***NOTE***

The BMCDISPN panel is located in the output JCL data set.

To invoke the OPERTUNE CLIST or the common BMCDISPN panel, complete the following steps:

1 OPERTUNE requires that the ISPF module ISPLINK reside in an ISPLLIB library, a STEPLIB library, the LPALIB, or the LINKLST. If ISPLINK is not in one of these libraries and you do not want to copy ISPLINK to one of these libraries, you must modify the OPERTUNE CLIST DDTCLIST to concatenate DDTLOAD with the library where ISPLINK is located as follows:

1 `ALLOC F(DDTLOAD) DA('HLQ1.LOAD' 'SYS1.ISPLOAD') SHR REUSE`

1 *HLQ1* is the high-level qualifier of your OPERTUNE load library.

2 The Install System customizes the member DDTCLIST in the output JCL data set. Copy the member to a CLIST library at your installation.

3 If your installation uses variable-block (VB) CLISTs rather than fixed-block (FB) CLISTs, you can re-block the CLIST by executing DDTRBLK, which is provided in the CNTL data set. Execution of DDTRBLK allocates a new VB CLIST, so you need to modify DDTRBLK to provide old and new high-level qualifiers for data sets and a volume for the allocation of the new CLIST library.

4 Invoke the OPERTUNE CLIST from TSO in one of the following ways:

5 %DDTCLIST

- To make OPERTUNE available from an ISPF menu, modify ISR@PRIM or an equivalent panel, as follows:

  1. In the `)BODY` area, add:

     ```
     %O     + BMC OPERTUNE
     ```

  2. In the `)PROC` area, add:

     ```
     O,'CMD(DDTCLIST)' /* OPERTUNE USING LIBDEF */
     ```

The LIBDEF option is required to support multiple OPERTUNE systems at different maintenance levels.

- The Install System customizes a panel that provides access to any or all of the Performance products. If you use it, modify ISR@PRIM or an equivalent panel as follows:

  1. In the panel area, add:

     ```
     %P     + Performance Products
     ```

  2. In the )PROC area, add:

     ```
     P,'PANEL(BMCDISPN)'
     ```

**6** Exit and reenter ISPF. Invoke the Performance products by selecting option **P** from the install system main menu or an equivalent panel.

# Define Security

This task is required for full installation. It is optional for maintenance installation. OPERTUNE secures its features through OPERTUNE user and security profiles. It also provides a security exit to interface with other security packages, such as RACF and ACF2. The SAF interface is required to use the default security exit.

You can use OPERTUNE security, the security interface exit, or a combination of both. This step explains how to set up OPERTUNE profiles, including two special profiles, * and DDTOPER. See the *OPERTUNE* Reference Manual for information on using the security interface exit.

To define security, follow these steps:

**1** Select option **8** (Administrative Utilities) from the OPERTUNE Main Selection Menu by typing **8** on the **Command** line and pressing **Enter**. Select option **12** and indicate **N/A** as the primary target OPERTUNE. When the Miscellaneous Selection Menu is displayed again, select option **3** (Security Profiles).

**2** Create a security profile with full authority for the installer by typing ADD and the name of your choice on the **Command** line of the Profile Selection List panel and pressing **Enter**. (See the *OPERTUNE* Reference Manual for more information on creating a security profile.) Copy the DEFAULT security profile into the installer security profile by typing **COPY DEFAULT** on the **Command** line. Save the installer security profile.

3. Review the DEFAULT security profile and modify it to suit your environment. The DEFAULT security profile is created during initialization of the VSAM profile data set and has full authority. The DEFAULT security profile is used by any user invoking the OPERTUNE dialog unless a security profile has been specified in the user profile of that user. For this reason, the values in the DEFAULT security profile should be global.

4. Create a user profile with full authority for the installer by entering ADD and your user ID on the **Command** line of the Profile Selection List panel and specifying the installer security profile created in 2. See the *OPERTUNE* Reference Manual for details on creating a user profile.

5. The * user profile created in Step 3 does not specify a security profile, so the DEFAULT security profile is used. The DEFAULT security profile provides full update authority to all subsystems of the user.

6. The * user profile is used by any new user invoking the OPERTUNE dialog, if a specific user profile for that user ID has not been created. When that new user issues the first request to the target OPERTUNE, a new user profile for the new user's ID is created, modeled after the * user profile. If only administrative functions are performed, no new profile is built and the DEFAULT profile continues to be used.

7. For these reasons, the values in the * user profile should be global. Review the * user profile and modify it to suit your environment. Delete the * user profile to restrict the authority of new users.

8. Define a default operator profile named DDTOPER in the following situations:

9. You decide to delete the * user profile to deny new users access through ISPF, but you want to allow operators to issue OPERTUNE commands from the operator console.

10. You want your operators to have different authorizations than those of the * user profile.

11. After defining DDTOPER, define a security profile with the appropriate authority and specify the security profile in the DDTOPER profile. If neither the * nor DDTOPER profiles are defined, only the MAINT command can be issued from the operator console. See the *OPERTUNE* Reference Manual for more information on the MAINT command.

12. Create additional user profiles as needed.

# Create an OPERTUNE System Profile

This task is required for full installation. Before you can access an OPERTUNE system, you must create a system profile. An OPERTUNE system runs as a started task, not as an MVS subsystem. See the *OPERTUNE Reference Manual* for a discussion about creating system profiles.

To create a system profile, follow these steps:

1 From the OPERTUNE Miscellaneous Selection Menu, select option **2** (OPERTUNE System Profiles).

2 Create a system profile with the four-character OPERTUNE identifier specified during execution of the installation dialog. Enter **ADD** and the new system name on the **Command** line of the Profile Selection List panel.

3 Create additional system profiles as needed.

# Start the OPERTUNE Started Task

This task is required. A sample started task is in the output JCL data set member DDTPROC.

To start the OPERTUNE started task, follow these steps:

1 From a system console, enter the following command:

```
S DDTPROC
```
(or the name of your customized procedure)

or

```
S DDTPROC,SYS=xxxx
```

where *xxxx* is the four-character ID of an OPERTUNE system at your installation that is different than the default specified in the OPERTUNE procedure.

Figure 54 shows the messages that appear during a normal startup of an OPERTUNE started task, where *xxxx* is the four-character OPERTUNE system ID and *aaaa* is the ASID address. These messages are issued in route code 11.

**Figure 54 JES Job Log and SYSPRINT Messages**

```
BMC31002I xxxx OPERTUNE Vv.r.mm, ASID(aaaa)- nnnnnnnn
BMC31154W xxxx OPERTUNE FOR type TRIAL WILL EXPIRE IN nn DAYS
BMC31300I xxxx NO VTAM APPLID SPECIFIED - VTAM OPERATIONS NOT POSSIBLE
BMC31500I xxxx subsystem ACCEPTING WORK REQUESTS FOR SUBSYSTEM
```

```
BMC31500I xxxx subsystem ACCEPTING WORK REQUESTS FOR SUBSYSTEM
BMC31019I xxxx INITIALIZATION COMPLETE
```

***NOTE***

The messages may not appear in the order shown and may be accompanied by other messages.

2 When you are ready to terminate the OPERTUNE started task, issue the following command:

3 `P xxxx`

4 where *xxxx* is the four-character OPERTUNE system ID.

5 If you are installing a maintenance upgrade, cycle the OPERTUNE started task and any ISPF sessions, using OPERTUNE to activate the new code.

***NOTE***

OPERTUNE also can be run as a batch job.

# Prepare ISPF for OPERTUNE Diagnostics

This task is required to obtain a dump for diagnostic purposes.

OPERTUNE provides diagnostic panels in case an abend occurs in the ISPF dialog. However, it may be necessary to obtain a dump to diagnose the problem. To ensure that a dump is properly obtained, follow these steps for each user of OPERTUNE:

1 From the ISPF Primary Option Menu, select option **0**.

2 Select **Environ** from the action bar and modify the settings to enable a dump.

3 Ensure that your logon procedure has a SYSUDUMP DD statement specified, or use the TSO ALLOC command when the abend occurs to allocate a dump data set.

4 The following examples illustrate how to properly obtain a dump:

### Example 1

The following command sends output to SYSOUT X:

```
TSO ALLOC FI(SYSUDUMP) CLASS(X)
```

**Example 2**

The following command sends output to a preallocated data set:

```
TSO ALLOC FI(SYSUDUMP) DSN('HLQ.SYSUDUMP') OLD
```

where *HLQ* is a high-level qualifier of your choice.

# Establish VTAM Communications

**This task is optional.** This task establishes communications between two or more OPERTUNE systems. See the *OPERTUNE* Reference Manual for a detailed discussion on communications between OPERTUNE systems.

# Proceed to the OPERTUNE Reference Manual

OPERTUNE is now installed and ready to use. See the *OPERTUNE* Reference Manual for information about using OPERTUNE.

# Manual Installation

If you are upgrading from a previous version to a new version, review any upgrade considerations in 1 and the current release notes. Then, proceed to on page 227.

To install and maintain OPERTUNE manually, follow these steps.

**1 Unload the distribution tape.**

**1** Required. To unload the distribution tape, follow these steps:

**A** Run the job listed in Figure 55 on page 219 to unload the OPERTUNE CNTL data set. Change HLQ1 to a high-level qualifier to be used for all OPERTUNE data sets.

**Figure 55 Unload CNTL Data Set JCL**

```
//unload  JOB (ACCT),'UNLOAD OPERTUNE',CLASS=A,MSGCLASS=X
//*
//UNLOAD    EXEC PGM=IEBCOPY
//SYSPRINT  DD SYSOUT=*
//SYSUT3    DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//IN1       DD DSN=BMC.OSZ3301.CNTL,
//          DISP=(OLD,PASS),
//          UNIT=CART,
//          VOL=SER=DISYMD,                    <=== CHANGE TAPE VOLSER
//          LABEL=(36,SL,EXPDT=98000)
//OUT1      DD DSN=HLQ1.CNTL,                  <=== CHANGE DSN
//          DISP=(NEW,CATLG,DELETE),
//          UNIT=SYSDA,
//          VOL=SER=vvvvvv,                    <=== CHANGE DASD VOLSER
//          DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB),
//          SPACE=(TRK,(10,5,10))
//SYSIN     DD *
  COPY I=((IN1,R)),O=OUT1
/*
```

**B** Modify member DDTUNLD in the OPERTUNE CNTL data set that you have just unloaded to supply correct tape and DASD VOLSERs and a high-level qualifier of your choice. Run DDTUNLD to download the remaining OPERTUNE files.

**2 APF-authorize the load library.**

**3** Required. APF-authorize the downloaded load library, or copy the modules to a library that is already APF-authorized. If the modules are copied to a linklist library, perform an LLA refresh.

4 **Allocate a VSAM profile data set.**

5 Required. Only one profile data set is required per CPU, and a single profile data set can be shared in a multiple-CPU, multiple-JES, shared-DASD environment. Follow these steps:

**A** Modify member DDTVSAM in the CNTL library to supply a DASD VOLSER and a high-level qualifier for a VSAM data set to be used for OPERTUNE profiles and the OPERTUNE LOAD data sets.

**B** Run DDTVSAM to allocate and format the profile KSDS, and place a * user profile in it.

**C** The VSAM profile data set is allocated to hold 1000 records and should remain fairly static after the initial implementation of OPERTUNE. Ensure that the data set is being backed up on a regular basis. If changes are made frequently, consider periodically REPROing the data set to a backup and REPROing it back again to reorganize it and reclaim free space. Do this while the OPERTUNE started task is down.

**D** You can then choose from the following options:

- Run DDTEINIT to initialize your profile data set, or
- Run DDTMIGR to copy your previous data set into the new profile data set.

***NOTE***

If you change the name of your VSAM profile data set, you must also change that name in the procedure that you use to start OPERTUNE (DDTPROC) and in the OPERTUNE CLIST (DDTCLIST).

6 **Retain CPU authorization modules.**

7 Optional. If you have already entered a permanent CPU authorization password for OPERTUNE for DB2, save module DDTTBL3P and copy it back into the new load library after the maintenance upgrade. If you have already entered a permanent CPU authorization password for OPERTUNE for MQSeries, save module DDMTBL3P and copy it back into the new load library after the maintenance upgrade.

8 **Copy the OPERTUNE procedure to a PROCLIB.**

9 Required. Each maintenance level of OPERTUNE requires only one started task procedure per MVS. Copy member DDTPROC from the OPERTUNE CNTL data set to a PROCLIB at your installation.

If you are installing a maintenance upgrade, cycle the OPERTUNE started task and any ISPF sessions, using OPERTUNE to activate the new code.

***NOTE***

For the purpose of canceling threads, BMC Software recommends that you run OPERTUNE at a dispatching priority higher than any DB2- or MQSeries-allied address spaces. Code the appropriate DPRTY parameter (for example, DPRTY=(*n*,*m*)) on the EXEC statement of the OPERTUNE procedure.

The procedure uses the following DD statements:

- **DDTPROFS**—Required. References the OPERTUNE profile data set that contains user, system, and security profiles.
- **DDTAUDIT**—Required. Logs the changes made to all subsystems by this OPERTUNE and provides an audit trace.

  By default, the log is written to SYSOUT. To write the audit log to DASD, pre-allocate a data set with the following attributes: LRECL=121, RECFM=FB, and DSORG=PS.

  If you allocate the data set in the OPERTUNE procedure with DISP=MOD, you *must* periodically check and empty the data set to prevent it from filling up. If you specify DISP=OLD, you must copy the data set each time OPERTUNE is terminated.

  If you write the audit log to a data set, specify DCB=BUFNO=1 on the DD statement to prevent buffering from occurring. You must make this specification to be able to view the latest OPERTUNE logged changes through the ISPF Browse option. In addition, if you perform an IPL on the MVS system while OPERTUNE is still up, some OPERTUNE changes may not be logged to the data set.
- DDTTRACE—Optional. Provides internal trace information for diagnostics purposes. Like DDTAUDIT, these traces could be output to SYSOUT or to DASD. The default is SYSOUT and is recommended. If you want to write the traces to DASD, pre-allocate a data set with the following attributes: LRECL=121, RECFM=FB, DSORG=PS.
- DDTTRACS—Optional. Provides a log to track the security profile created by the OPERTUNE security exit. Like DDTAUDIT, these traces could be output to SYSOUT or to DASD. The default is SYSOUT and is recommended. If you want to write the traces to DASD, pre-allocate a data set with the following attributes: LRECL=121, RECFM=FB, DSORG=PS.

**10 Invoke the OPERTUNE CLIST.**

**11** Required. Each maintenance level of OPERTUNE requires only one CLIST per MVS.

**12** To invoke the OPERTUNE CLIST, follow these steps:

**A** OPERTUNE requires that the ISPF module ISPLINK reside in an ISPLLIB library, a STEPLIB library, the LPALIB, or the LINKLST. If ISPLINK is not in one of these libraries and you do not want to copy ISPLINK to one of these libraries, you must modify the OPERTUNE CLIST DDTCLIST to concatenate DDTLOAD with the library where ISPLINK is located as follows:

**A**
```
ALLOC F(DDTLOAD) DA('HLQ1.LOAD' 'SYS1.ISPLOAD') SHR REUSE
```

**A** where *HLQ1* is the high-level qualifier of your OPERTUNE load library.

**B** Copy the DDTCLIST member from the OPERTUNE CLIST library to a CLIST library at your installation.

***NOTE***

If your installation uses variable-block (VB) CLISTs rather than fixed-block (FB) CLISTs, you can re-block the CLIST by executing DDTRBLK, which is provided in the CNTL data set. Execution of DDTRBLK allocates a new VB CLIST, so you need to modify DDTRBLK to provide old and new high-level qualifiers for data sets and a volume for the allocation of the new CLIST library.

**C** Invoke the OPERTUNE CLIST from TSO in one of the following ways:

- %DDTCLIST
- To make OPERTUNE available from an ISPF menu, modify ISR@PRIM or an equivalent panel, as follows:

  In the )BODY area, add:

  ```
  %O     + BMC OPERTUNE
  ```

  In the )PROC area, add

  ```
  O,'CMD(DDTCLIST)' /* OPERTUNE USING LIBDEF */
  ```

  The LIBDEF option is required to support multiple OPERTUNE systems at different maintenance levels.

**13 Define security.**

**14** This step is required for full installation. It is optional for maintenance installation. OPERTUNE secures its features through OPERTUNE user and security profiles. It also provides a security exit to interface with other security packages such as RACF and ACF2. The SAF interface is required to use the default security exit.

**15** You can use OPERTUNE security, the security interface exit, or a combination of both. This step explains how to set up OPERTUNE profiles, including two special profiles, DEFAULT and DDTOPER. See the *OPERTUNE* Reference Manual for information on using the security interface exit.

**16** To define security, follow these steps:

**A** Select option **8** (Administrative Utilities) from the OPERTUNE Main Selection Menu by typing **8** on the **Command** line and pressing **Enter**.

**B** Select option **12** and indicate **N/A** as the primary target OPERTUNE. The Miscellaneous Selection Menu is displayed.

**C** Select option **3** (Security Profiles).

**D** Create a security profile with full authority for the installer by typing **ADD** and the name of your choice on the **Command** line of the Profile Selection List panel and pressing **Enter**. (See the *OPERTUNE* Reference Manual for more information about creating a security profile.)

**E** Copy the DEFAULT security profile into the installer security profile by typing **COPY DEFAULT** on the **Command** line. Save the installer security profile.

**F** Review the DEFAULT security profile and modify it to suit your environment. The DEFAULT security profile is created during initialization of the VSAM profile data set and has full authority. The DEFAULT security profile is used by any user invoking the OPERTUNE dialog unless a security profile has been specified in the user profile of that user. For this reason, the values in the DEFAULT security profile should be global.

**G** Create a user profile with full authority for the installer by entering **ADD** and your user ID on the **Command** line of the Profile Selection List panel and specify the installer security profile created above. See the *OPERTUNE* Reference Manual for details about creating a user profile.

**H** The * user profile does not specify a security profile, so the DEFAULT security profile is used. The DEFAULT security profile provides full update authority to all DB2 and MQSeries subsystems of the user.

**I** The * user profile is used by any new user invoking the OPERTUNE dialog, if a specific user profile for that user ID has not been created. When that new user issues the first request to the target OPERTUNE, a new user profile for his user ID is created, modeled after the * user profile. If only administrative functions are performed, no new profile is built and the * user profile continues to be used.

**J** For these reasons, the values in the * user profile should be global. Review the * user profile, and modify it to suit your environment. Delete the * user profile to restrict the authority of new users.

**K** Define a default operator profile named DDTOPER in the following situations:

- You decide to delete the * user profile to deny new users access through ISPF, but you want to allow operators to issue OPERTUNE commands from the operator console.
- You want your operators to have different authorizations than those of the * user profile.
- Define a security profile with the appropriate authority, and specify the security profile in the DDTOPER profile. If neither the * user nor DDTOPER profiles are defined, only the MAINT command can be issued from the operator console. See the *OPERTUNE* Reference Manual for more information on the MAINT command.

**L** Create additional user profiles as needed.

**17 Create an OPERTUNE system profile.**

**18** This step is required for full installation. Before you can access an OPERTUNE system, you must create a system profile. An OPERTUNE system runs as a started task, not as an MVS subsystem. See the *OPERTUNE Reference Manual* for a discussion about creating system profiles. To create a system profile, follow these steps:

**A** From the OPERTUNE Miscellaneous Selection Menu, select option **2** (OPERTUNE System Profiles).

**B** Create a system profile with the four-character OPERTUNE identifier specified during execution of the installation dialog. Enter ADD and the new system name on the **Command** line of the Profile Selection List panel.

**C** Create additional system profiles as needed.

**19 Start the OPERTUNE started task.**

This step is required. From a system console, enter the following command:

```
S DDTPROC    (or the name of your customized procedure)
```

or

```
S DDTPROC,SYS=xxxx
```

where *xxxx* is the four-character ID of an OPERTUNE system at your installation that is different than the default specified in the OPERTUNE procedure.

Figure 56 shows the messages that appear during a normal start up of an OPERTUNE started task, where *xxxx* is the four-character OPERTUNE system ID and *aaaa* is the ASID address. These messages are issued in route code 11.

**Figure 56 JES Job Log and SYSPRINT Messages**

```
BMC31002I xxxx OPERTUNE Vv.r.mm, ASID(aaaa)- nnnnnnnn
BMC31154W xxxx OPERTUNE FOR type TRIAL WILL EXPIRE IN nn DAYS
BMC31300I xxxx NO VTAM APPLID SPECIFIED - VTAM OPERATIONS NOT POSSIBLE
BMC31500I xxxx subsystem ACCEPTING WORK REQUESTS FOR SUBSYSTEM
BMC31500I xxxx subsystem ACCEPTING WORK REQUESTS FOR SUBSYSTEM
BMC31019I xxxx INITIALIZATION COMPLETE
```

***NOTE***

The messages may not appear in the order shown and might be accompanied by other messages.

When you are ready to terminate the OPERTUNE started task, issue the following command:

```
P xxxx
```

where *xxxx* is the four-character OPERTUNE system ID.

If you are installing a maintenance upgrade, cycle the OPERTUNE started task and any ISPF sessions, using OPERTUNE to activate the new code.

***NOTE***

OPERTUNE also can be run as a batch job.

**20 Prepare ISPF for OPERTUNE diagnostics.**

**21** Required to obtain a dump for diagnostic purposes.

**22** OPERTUNE provides diagnostic panels in case an abend occurs in the ISPF dialog. However, it may be necessary to obtain a dump to diagnose the problem. To ensure that a dump is properly obtained, follow these steps for each user of OPERTUNE:

**A** From the main ISPF menu, select option **0.7** and set ENBLDUMP to ON.

**B** Ensure that your logon procedure has a SYSUDUMP DD statement specified, or use the TSO ALLOC command when the abend occurs to allocate a dump data set.

**C** The following examples illustrate how to properly obtain a dump.

### Example 1

The following command sends output to SYSOUT X:

```
TSO ALLOC FI(SYSUDUMP) CLASS(X)
```

### Example 2

The following command sends output to a preallocated data set:

```
TSO ALLOC FI(SYSUDUMP) DSN('HLQ.SYSUDUMP') OLD
```

where *HLQ* is a high-level qualifier of your choice.

**23** **Establish VTAM communications.**

**24** This step is **optional.** This step establishes communications between two or more OPERTUNE systems. See the *OPERTUNE* Reference Manual for a detailed discussion on communications between OPERTUNE systems.

**25** **Proceed to the OPERTUNE Reference Manual**.

**26** This step is **optional.** OPERTUNE is now installed and ready to use. See the *OPERTUNE* Reference Manual for information on using OPERTUNE.

# Manual Installation for a Maintenance Upgrade

Perform a maintenance upgrade if you are upgrading from one version or release to another.

***NOTE***

See "OPERTUNE Upgrade Considerations" on page 51 before proceeding with installation.

To install an OPERTUNE maintenance upgrade, follow these steps:

**1 Retain the CPU authorization module.**

1 This step is optional. If you have already entered a permanent CPU authorization password for OPERTUNE for DB2, save module DDTTBL3P and copy it back into the new load library after the maintenance upgrade. If you have already entered a permanent CPU authorization password for OPERTUNE for MQSeries, save module DDMTBL3P and copy it back into the new load library after the maintenance upgrade.

**2 Unload the distribution tape.**

3 This step is required. To unload the distribution tape, follow these steps:

A Run the unload job shown in Figure 57 to unload the OPERTUNE CNTL data set.

**Figure 57 Unload CNTL Data Set JCL**

```
//unload  JOB (ACCT),'UNLOAD OPERTUNE',CLASS=A,MSGCLASS=X
//*
//UNLOAD    EXEC PGM=IEBCOPY
//SYSPRINT  DD SYSOUT=*
//SYSUT3    DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//IN1       DD DSN=BMC.OSZ3301.CNTL,
//          DISP=(OLD,PASS),
//          UNIT=CART,
//          VOL=SER=DISYMD,                    <=== CHANGE TAPE VOLSER
//          LABEL=(36,SL,EXPDT=98000)
//OUT1      DD DSN=HLQ1.CNTL,                  <=== CHANGE DSN
//          DISP=(NEW,CATLG,DELETE),
//          UNIT=SYSDA,
//          VOL=SER=vvvvvv,                    <=== CHANGE DASD VOLSER
//          DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB),
```

```
//          SPACE=(TRK,(10,5,10))
//SYSIN     DD *
  COPY I=((IN1,R)),O=OUT1
/*
```

**B** Modify member DDTUNLD in the OPERTUNE CNTL data set that you have just unloaded to supply correct tape and DASD VOLSERs and a high-level qualifier of your choice. Run DDTUNLD to download the remaining OPERTUNE files.

**4** **APF-authorize the load library.**

**5** This step is required. If the maintenance tape is being downloaded to a new load library, the new load library must be APF-authorized or you must copy the modules to a library that is already APF-authorized. If the modules are copied to a linklist library, perform an LLA refresh.

**6** **Review upgrade considerations.**

**7** This step is optional. If you are upgrading to a new version of OPERTUNE, review on page 211.

**8** **Review the OPERTUNE procedure.**

**9** This step is required. Review member DDTPROC in the OPERTUNE CNTL data set, and compare it to the OPERTUNE procedure that you are executing. Incorporate any new changes into your procedure.

***NOTE***

For the purpose of canceling threads, BMC Software recommends that you run OPERTUNE at a dispatching priority higher than any DB2- or MQSeries-allied address spaces. Code the appropriate DPRTY parameter (for example, DPRTY=(*n*,*m*)) on the EXEC statement of the OPERTUNE procedure.

**10** **Review the OPERTUNE CLIST.**

**11** This step is required. Review member DDTCLIST in the OPERTUNE CLIST data set, and compare it to the OPERTUNE CLIST you are executing. Incorporate any new changes into your CLIST.

**12** The new OPERTUNE maintenance upgrade is now ready to use.

***NOTE***

If your installation uses variable-block (VB) CLISTs rather than fixed-block (FB) CLISTs, use member DDTRBLK in the OPERTUNE CNTL data set to create a variable-blocked CLIST.

**13 Cycle OPERTUNE and ISPF.**

**14** This step is required. Cycle your OPERTUNE started task and any ISPF sessions, using OPERTUNE to activate the new code.

# Where to Go from Here

When installation and customization of your products is complete, see the following books:

- *OPERTUNE for DB2 Reference Manual*
- *OPERTUNE for DB2 Reference Summary*
- *OPERTUNE for MQSeries Reference Manual*
- *OPERTUNE for MQSeries Reference Summary*

# System and SQL Performance for DB2 Installation Checklist

This appendix contains a checklist of information needed to install the System and SQL Performance products. This appendix presents the following topics:

# System and SQL Performance Products Installation Checklist

The following information is required to successfully install the System and SQL Performance products. Complete this checklist before you begin to install the products, keep it handy during installation, and retain it for future reference.

| |
|---|
| 1.Unloading the Tape |
| VOLSER of tape:_____ |
| Tape creation date:_____ |
| Installation library name:_____<br>Example: BMC.DCI.INSTALL |
| Installation load library name:_____<br>Example: BMC.DCI.INSTALL.LOAD |
| |
| Does the installer's ISPF profile data set contain at least one free directory block? _____ (Y/N) |
| |
| 2.Repository/Profile |
| Repository data set:_____ |
| Repository profile ID:_____Use 4 characters that do not exist as a high level of any ISPF profile data set members |
| |
| 3.User Options |
| Install JCL data set:_____ |
| Install JCL storage class:_____Specify value if required for SMS |
| Install JCL management class:_____Specify value if required for SMS |
| Install JCL data class:_____Specify value if required for SMS |
| Install JCL unit:_____Blank to use installation library unit |
| Install JCL VOLSER:_____ |
| |
| 4.Product Installation |
| __ ACTIVITY MONITOR for DB2 (DOM) |
| __ Application Performance for DB2 (AFD) |
| __ APPTUNE for DB2 (ASQ) |
| __ MAINVIEW for DB2 – Data Collector (BDS) |
| __ Pool Advisor for DB2 (PMD) |
| __ SQL Explorer for DB2 (PSS) |
| |
| DB2 version: _____ (6, 7) |
| |
| |
| |

| |
|---|
| **JCL job card:** |
| //_____ |
| //_____ |
| //_____ |
| |
| **Data set default options:** |
| Library unit name:_____ |
| Load library DCB blocksize:_____(default = 23476) |
| Temporary unit name:_____ |
| |
| Non-SMP/E related library options: |
| Non-VSAM library prefix:_____(PDS data sets) |
| VSAM library prefix:_____ |
| |
| **Permanent data set options:** |
| SMS managed?_____(Y/N) |
| Non-VSAM data set VOLSER:_____ |
| |
| **For SMS:** |
| Non-VSAM storage class:_____ |
| Non-VSAM management class:_____ |
| Non-VSAM data class:_____ |
| |
| DASD type:_____(3380, 3390, mixed-unknown) |
| Space units:_____(BLKS, TRKS, CYLS) |
| |
| Panel and message libraries: _____(1 = mixed case, 2 = all uppercase) |
| |
| Variable block or fixed block CLIST library: _____(F = fixed, V = variable) |
| |
| 5.Customization |
| **Current releases installed (migration only):** |
| Product: _____Release: _____ |
| Product: _____Release: _____ |
| Product: _____Release: _____ |
| |
| |
| **System library names [enclose in apostrophes (')]:** |
| DB2 load library:_____ |
| DB2 exit library:_____ |
| |
| Specify assembler to use:_____(1 = ASMA90, 2 = IEV90, 3 = other) |
| |

| |
|---|
| **Optional STEPLIB information:** |
| Other STEPLIB load library names:_____ |
| _____ |
| _____ |
| |
| **Optional APF information:** |
| APF target library: _____ |
| APF data set name:_____ |
| APF data set blocksize:_____ |
| |
| Unload SAS/C(tm) 6.5.00 into product LOADLIB?_____(Y/N) |
| |
| **DB2 parameters:** |
| DB2 subsystem ID:_____(*required*) |
| DB2 catalog alias:_____(*required*) |
| DB2 STOGROUP: _____(*optional*) |
| Decimal indicator is comma:_____(*optional*) |
| DB2 subsystem is mixed data:_____(*optional*) |
| Create tables with RESTRICT ON DROP:_____(*optional*) |
| Specify DATABASE BUFFERPOOL:_____(*optional*) |
| Specify TABLESPACE BUFFERPOOL:_____(*optional*) |
| Specify INDEX BUFFERPOOL:_____(*optional*) |
| Installation plan name:_____(*required*—default = BMIINSTL) |
| |
| **Installation authorization IDs (primary ID or secondary ID, but not both):** |
| Primary AUTHID:_____ |
| Secondary AUTHID:_____(recommended for users of external DB2 security |
| |
| *Optional* **additional AUTHIDs to be granted access:** |
| GRANT to AUTHID 1:_____ |
| GRANT to AUTHID 2:_____ |
| GRANT to AUTHID 3:_____ |
| |
| SQL Explorer default options module:_____ |
| |
| Qualifier of product synonyms:_____(default = DAA*vrm*D) |
| Qualifier status:_____(1 = new, 2 = used/reuse) |
| |
| System and SQL Performance products plan:_____(default = DAA*vrm*D1) |
| |
| System and SQL Performance products collection ID:_____(default = DAA*vrm*_D_MAIN) |
| |
| |

| |
|---|
| **Options for new product data sets:** |
| VSAM volume for data component:_____ |
| VSAM volume for Index Component:_____ |
| |
| **For SMS:** |
| VSAM storage class:_____ |
| VSAM management class:_____ |
| VSAM data class:_____ |
| |
| **Previous product VSAM data sets (required only for migration):** |
| Existing VSAM high-level qualifier:_____ |
| Existing VSAM PROFILE data set: _____ |
| Existing VSAM SECURITY data set: _____ |
| Existing VSAM STATUS data set: _____ |
| Existing VSAM CUSTOM data set: _____ |
| Existing VSAM HELP data set: _____ |
| Existing VSAM COPYDIR data set: _____ |
| Existing LOADLIB:_____ |
| Reapply permanent zaps?_____(Y/N) |
| |
| **DB2 object definitions:** |
| Table space STOGROUP:_____or VCAT name:_____ |
| Index space STOGROUP:_____or VCAT name:_____ |
| VCAT DASD type:_____(1 = 3380, 2 = 3390)—for VCAT name |
| Database name:_____(default = BMCDAA*vr*) |
| Creator name:_____(default = BMCDAA*vr*) |
| |
| **DB2 data migration options:** |
| Creator name:_____ |
| Base table name:_____ |
| Stats table name:_____ |
| SQL text table name:_____ |
| Rules table name:_____ |
| |
| **SYSREC data set options:** |
| SYSREC prefix:_____ |
| SYSCOPY prefix:_____ |
| Device type:_____ |
| Tape device?_____(Y/N) |
| Stacked output?_____(Y/N) |
| |
| |
| |

| |
|---|
| **Verify installed utilities:** |
| Copy:_____(1 = BMC Copy, 2 = IBM Copy) |
| Load:_____(1 = BMC Load, 2 = IBM Load) |
| |
| **Location of load libraries [enclose in apostrophes (')]:** |
| Copy LOADLIB:_____ |
| Load LOADLIB:_____ |
| |
| CUA PF key settings:_____(1 = use CUA PF key settings, 2 = use PF key settings from ISPF Parameter Options) |
| |
| 6.Authorization |
| **Authorization method for each installed product:** |
| Product: _____Authorization method: _____ (1 = copy previous password, 2 = trial password, 3 = permanent password) |
| Product: _____Authorization method: _____ (1 = copy previous password, 2 = trial password, 3 = permanent password) |
| Product: _____Authorization method: _____ (1 = copy previous password, 2 = trial password, 3 = permanent password) |
| |
| **Copy previous password:** |
| Product authorization modules in one load library?_____(Y/N) |
| Product: _____Load library name: _____ |
| Product: _____Load library name: _____ |
| Product: _____Load library name: _____ |
| |
| **Trial/bypass password:** |
| Product: _____Password: ____ ____ ____ ____CPUID-TYPE:____ ____ |
| Product: _____Password: ____ ____ ____ ____CPUID-TYPE:____ ____ |
| Product: _____Password: ____ ____ ____ ____CPUID-TYPE:____ ____ |
| |
| **Permanent password:** |
| Select a single CPUID-TYPE for all products selected?_____(Y/N) |
| CPUID-TYPE: _____ |
| |
| Product: _____Password: ____ ____ ____ ____CPUID-TYPE:____ ____ |
| Product: _____Password: ____ ____ ____ ____CPUID-TYPE:____ ____ |
| Product: _____Password: ____ ____ ____ ____CPUID-TYPE:____ ____ |
| |

# Installation Assistant

The following information is required to run the Installation Assistant. Many values that are used by the Installation Assistant are defaults or can be obtained from the data typed on DCI panels. These values *can* be changed. Online Help is available in the Installation Assistant for all required values.

| |
|---|
| New product load library:_____ |
| Two-letter prefix for the DOMPLEX and its Data Collectors:_____(default = DC) |
| Two-digit number for the beginning Data Collector number:_____(default = 01) |
| |
| **DASD for trace data sets:** |
| Type (3380, 3390)_____ |
| Data set VOLSER:_____ or |
| SMS storage class:_____ |
| |
| **Answer these questions if DOM or BDS is installed:** |
| Monitor this DB2 with DOM or BDS?_____(Y/N) |
| Automatically start exceptions (DOM only)?_____(Y/N) |
| DB2 statistics collection interval (DOM only):_____(default = 60) |
| XBM data set statistics collection interval (DOM only):_____(default = 60) |
| |
| **Answer these questions if ASQ or AFD is installed:** |
| Monitor this DB2 with ASQ or AFD?_____(Y/N) |
| Automatically start ASQ or AFD SQL data collection?_____(Y/N) |
| Collect ASQ or AFD object data?_____(Y/N/S/D)—S = static, D = dynamic |
| |
| ASQ or AFD SQL statistics collection interval:_____(default = 1440) |
| |
| **Answer this question if PMD is installed:** |
| Monitor this DB2 with PMD?_____(Y/N) |

| **Output Group and Trace Data Set Information** |
|---|
| The Installation Assistant uses this information to calculate the trace data set configuration. |
| |
| Dedicate to DB2?_____(Y/N) |
| Monitor DB2 with DOM or BDS?_____(Y/N) |
| Monitor DB2 with ASQ or AFD?_____(Y/N) |
| Monitor DB2 with PMD?_____(Y/N) |
| Transactions per hour:_____(L/M/H) |
| Data online:_____(L/M/H) |
| Output separation:_____(L/M/H) |
| |
| DB2 subsystem IDs:_____ _____ _____ _____ _____ _____ |
| |
| The information below this line applies to DOMPLEX Output Groups for ASQ and AFD. Make a copy of this page for each different configuration of DOMPLEX Output Groups that you will define.<br><br>For more information about specifying the output group information in this section, see "Defining Output Groups" on page 241. |

| Output Group | Data Class | Data Collector SSID | DB2 SSID | Data Space Name | Data Set Name | Space Allocation (CYLS) | VOLSER |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| The information below this line is DB2 specific. Make a copy of this page and the one that follows for each different configuration of DB2 that you will define. |
|---|
| **DB2/Data Collector plan BIND information:** |
| MVS SMF ID:_____(Must be 4 characters that uniquely identify the MVS to the Installation Assistant) |
| DB2 version:_____ |
| Dynamic Explain plan name:_____(default = DAA*vrmD1*)—DOM, ASQ, PSS, AFD, and BDS |
| |
| **Answer these questions if AFD is installed:** |
| DB name of dynamically created WHAT-IF PLAN_TABLE:_____ |
| TS name of dynamically created WHAT-IF PLAN_TABLE:_____ |
| BP name of dynamically created WHAT-IF PLAN_TABLE:_____ |
| SG name of dynamically created WHAT-IF PLAN_TABLE:_____ |
| SQLID of dynamically created WHAT-IF PLAN_TABLE:_____ |
| |
| DB2 load library:_____ |
| DB2 exit library:_____ |
| |
| **DOMPLEX Information** |
| Sysplex communications enabled?_____(Y/N) |
| Global data transfer limit:_____(default = 20) |
| Local data transfer limit:_____(default = 50) |
| Submit copy JCL on shutdown?_____(Y/N)—DOM, ASQ, AFD, and BDS |
| DOMPLEX name:_____ |
| DOMPLEX description:_____ |
| Copy JCL data set:_____(DOM, ASQ, AFD, and BDS) |
| Copy JCL member name:_____(If data set is a PDS)—DOM, ASQ, PSS, AFD, and BDS |
| |
| **Data Collector Information** |
| Maximum number of concurrent online users:_____(default = 99) |
| Maximum number of concurrent batch users:_____(default = 1)—DOM, ASQ, and AFD |
| WTO messages route code:_____(default = 0) |
| WTO upon user connection?_____(Y/N) |
| WTO upon user connection termination?_____(Y/N) |
| Maximum DB2 log messages retained online:_____(default = 500) |
| XBM cache statistics interval:_____(default = 60)—DOM |
| VTAM Router Profile APPLID:_____(DOM) |
| Exception Facility PROC to be started:_____(DOM) |
| |
| Trace data set name high-level qualifier:_____ |

# Post-Installation Assistant

| |
|---|
| Generate Help text from DB2 trace record field descriptions?_____(Y/N) (optional—see page 80) |
| PROCLIB name:_____<br>(see page 81) |
| |
| **Started task member names:** |
| Data Collector: _____ |
| Exception Facility (DOM only):_____ |
| VTAM Router (DOM only):_____ |
| |
| **ISPF library names (optional—see page 83):** |
| Panels:_____ |
| Table library:_____ |
| LOADLIB:_____ |
| PARMLIB:_____ |
| TEMPLATE:_____ |
| |
| Name of CLIST library:_____ |

# Defining Output Groups

This topic applies only to APPTUNE, SQL Explorer, and Application Performance.

This section provides guidelines for completing the output group section of the Installation Assistant Checklist. For more information about output groups, see the *System and SQL Performance for DB2 Administrator Guide*.

Output groups are configured based on a combination of the following factors:

- transactions per hour
- output group separation
- amount of data that is viewable online

The following table shows how these factors are used to configure output groups:

| Transactions Per Hour | Output Group Separation | Amount of Data Viewable Online |
|---|---|---|
| Low (fewer than 10,000) | Low (2) | Low (1 day) |
| Medium (10,000 to 50,000) | Medium (3) | Medium (3 days) |
| High (more than 50,000) | High (5) | High (4 days) |

For the output group information that you specify, ensure that

- sufficient space is available on each VOLSER
- you have sufficient RACF (ACF2 or Top Secret) authority for each data set name

The space allocations provided in this section are estimated. DB2 records vary widely in size, so you might get a different amount of data than you expect. You can adjust the allocated space in the DOMPLEX Profile.

***NOTE***

In the examples, non-shaded table rows apply to APPTUNE and Application Performance. Shaded table rows apply only to Application Performance. Only the DCSYSTEM table rows apply to SQL Explorer.

The configuration shown in Table 39 on page 242 is monitoring a single DB2 subsystem ID (SSID) with fewer than 10,000 transactions per hour. Because of this low number of transactions, only two output groups are defined. The space allocation for the data sets is also low, so the amount of data that is available for online viewing is limited to approximately one day.

***NOTE***

Increasing the space allocation for the data sets will increase the amount of data (in days) that is available for online viewing.

**Table 39 Example of a Low-Configuration Output Group Definition**

| Output Group | Data Class | Data Collector SSID | DB2 SSID | Data Space Name | Data Set Name | Space Allocation (CYLS) | VOLSER |
|---|---|---|---|---|---|---|---|
| 1 | DCSYSTEM[a] | | | | *HLQ*.DC-SSID.OG01.*dataClassName*.TRACE01 | 5 | |
| 2 | APSTACC, APSTACCS, APSTMT, APOBJECT, APINDEX[b], APBIND[b], APERROR | | | | *HLQ*.DC-SSID.OG02.*dataClassName*.TRACE01 | 25 | |
| 2 | APSTACC, APSTACCS, APSTMT, APOBJECT, APINDEX[b], APBIND[b], APERROR | | | | *HLQ*.DC-SSID.OG02.*dataClassName*.TRACE02 | 25 | |

[a]This is the only data class that applies to SQL Explorer.

[b]These data classes apply only to Application Performance.

The configuration shown in Table 40 on page 243 is monitoring one or more DB2 SSIDs with 10,000 to 50,000 transactions per hour. Because this is a medium number of transactions, three output groups are defined. The space allocation for the data sets is also medium, so the amount of data that is available for online viewing is limited to approximately three days.

***NOTE***

Increasing the space allocation for the data sets will increase the amount of data (in days) that is available for online viewing.

**Table 40 Example of a Medium-Configuration Output Group Definition**

| Output Group | Data Class | Data Collector SSID | DB2 SSID | Data Space Name | Data Set Name | Space Allocation (CYLS) | VOLSER |
|---|---|---|---|---|---|---|---|
| 1 | DCSYSTEM[a] | | | | *HLQ*.DC-SSID.OG01.*dataClassName*.TRACE01 | 5 | |
| 2 | APSTACC, APSTACCS, APSTMT | | | | *HLQ*.DC-SSID.OG02.*dataClassName*.TRACE01 | 100 | |
| 2 | APSTACC, APSTACCS, APSTMT | | | | *HLQ*.DC-SSID.OG02.*dataClassName*.TRACE02 | 100 | |
| 3 | APSTMT, APOBJECT, APINDEX[b], APBIND[b], APERROR | | | | *HLQ*.DC-SSID.OG03.*dataClassName*.TRACE01 | 100 | |
| 3 | APSTMT, APOBJECT, APINDEX[b], APBIND[b], APERROR | | | | *HLQ*.DC-SSID.OG03.*dataClassName*.TRACE02 | 100 | |

[a]This is the only data class that applies to SQL Explorer.

[b]These data classes apply only to Application Performance.

The configuration shown in Table 41 is monitoring one or more DB2 SSIDs with 50,000 to 100,000 transactions per hour. Because this is a high number of transactions, five output groups are defined. The space allocation for the data sets is also high, so the amount of data that is available for online viewing is limited to approximately five days.

***NOTE***

Increasing the space allocation for the data sets will increase the amount of data (in days) that is available for online viewing.

**Table 41 Example of a High-Configuration Output Group Definition**

| Output Group | Data Class | Data Collector SSID | DB2 SSIS | Data Space Name | Data Set Name | Space Allocation (CYLS) | VOLSER |
|---|---|---|---|---|---|---|---|
| 1 | DCSYSTEM[a] | | | | *HLQ*.DC-SSID.OG01.*dataClassName*.TRACE01 | 5 | |
| 2 | APSTACC, APSTACCS | | | | *HLQ*.DC-SSID.OG02.*dataClassName*.TRACE01 | 375 | |
| 2 | APSTACC, APSTACCS | | | | *HLQ*.DC-SSID.OG02.*dataClassName*.TRACE02 | 375 | |
| 3 | APSTMT | | | | *HLQ*.DC-SSID.OG03.*dataClassName*.TRACE01 | 375 | |
| 3 | APSTMT | | | | *HLQ*.DC-SSID.OG03.*dataClassName*.TRACE02 | 375 | |
| 4 | APERROR | | | | *HLQ*.DC-SSID.OG04.*dataClassName*.TRACE01 | 375 | |
| 4 | APERROR | | | | *HLQ*.DC-SSID.OG04.*dataClassName*.TRACE02 | 375 | |
| 5 | APOBJECT | | | | *HLQ*.DC-SSID.OG05.*dataClassName*.TRACE01 | 375 | |
| 5 | APOBJECT | | | | *HLQ*.DC-SSID.OG05.*dataClassName*.TRACE02 | 375 | |
| 6 | APINDEX[b] | | | | *HLQ*.DC-SSID.OG06.*dataClassName*.TRACE01 | 375 | |
| 6 | APINDEX[b] | | | | *HLQ*.DC-SSID.OG06.*dataClassName*.TRACE02 | 375 | |
| 7 | APBIND[b] | | | | *HLQ*.DC-SSID.OG07.*dataClassName*.TRACE01 | 375 | |
| 7 | APBIND[b] | | | | *HLQ*.DC-SSID.OG07.*dataClassName*.TRACE02 | 375 | |

[a]This is the only data class that applies to SQL Explorer.

[b]These data classes apply only to Application Performance.

# SQL Explorer Default Options

This appendix contains default options for the SQL Explorer client product.This appendix presents the following topics:

# Default Options Module

This section provides an example of the default options (DOPTs) module (Figure 58) for the SQL Explorer product. The DOPTs module is created by the installation system and resides in $*xnn*DOPT. The DOPTs module also resides in *HLQ*.CNTL with the same member name as the DOPTs.

**Figure 58 SQL Explorer Default Options Listing (Part 1 of 3)**

```
*************************************************************************
*
* MODULE      : PSSDOPD1
* FUNCTION    : SQL Explorer for DB2
* COPYRIGHT   : COPYRIGHT BMC SOFTWARE INC., 2002
* LEVEL       : RELEASE 4.0 NOVEMBER 2002
* FUNCTIONS   : DEFINE THE DEFAULT PROFILE VARIABLES
*
*************************************************************************
PSSDOPTS CSECT ,
PSSDOPTS RMODE 24
PSSDOPTS AMODE 24
PSSDOPTS $PSSDOPT PRODUCT='SQL EXPLORER',                              *
               DATE=&SYSDATC,                                          *
 PC=PSS,                                                 *
               VRM=(400E,R),                                           *
 SSID=(DBDB,R),                                          *
 DB2CAT=('DBDBCAT',R),                                   *
 EURO=(N,R),                                             *
 SYSTYPE=S,                                              *
 PIC=N,                                                  *
               LOG=N,                                                  *
 SL1=('''BMCPERF.D71.LOAD''',R),                     *
 SL2=('''SYS3.DBDB.DSNEXIT''',R),                        *
 SL3=('''SYS2.DB2V71M.DSNLOAD''',R),                     *
 SL4=' ',                                                *
 SL5=' ',                                                *
               ISPSLIB=('''BMCPERF.SLIB''',R),                *
 TSOSX=N,                                                *
 JC1='//&&USERID.&&JOBCHAR JOB (ACCT),''&&PGMR'',',      *
 JC2='// CLASS=A,MSGCLASS=X,MSGLEVEL=(1,1),',            *
 JC3='// NOTIFY=&&USERID',                               *
 JC4='//*',                                              *
 JC5='//*',                                              *
 DBRM1=,                                                 *
 DBRM2=,                                                 *
 DBRM3=,                                                 *
 DBRMLIB=N,                                              *
 WU=SYSDA,                                               *
 WPS=10,                                                 *
 WSS=2,                                                  *

               WDC=,                                                   *
               WSC=,                                                   *
 WMC=,                                                   *
```

**Figure 58 SQL Explorer Default Options Listing (Part 2 of 3)**

```
SWU=SYSDA,                                                *
SWPS=10,                                                  *
SWSS=2,                                                   *
WDSN=’’’&&PREFIX..&&SSID..&&WORKID’’’,                    *
WLU=SYSDA,                                                *
WLPS=15,                                                  *
             WLSS=5,                                                  *
             JDSN=’’’&&PREFIX..ANALYSIS(&&WORKID)’’’,                 *
             JDSNE=’’’&&PREFIX..EXEC(&&WORKID)’’’,                    *
             JDSNBG=’’’&&PREFIX..JCLGEN(&&WORKID)’’’,                 *
SDSN=SYSOUT,                                              *
SDSNE=SYSOUT,                                             *
CATAUDIT=(N,R),                                           *
CATRECOV=(N,R),                                           *
SYSRPREF=’&&PREFIX..&&SSID..&&WORKID8’,                   *
SYSRUNIT=SYSDA,                                           *
SYSRPS=10,                                                *
SYSRSS=2,                                                 *
SYSRMAX=,                                                 *
             SYSRMAXU=,                                               *
SYSCPREF=’&&PREFIX..&&SSID..&&OBNOD’,                     *
SYSCUNIT=SYSDA,                                           *
SYSCPS=10,                                                *
SYSCSS=2,                                                 *
SYSCMAX=,                                                 *
SYSCMAXU=,                                                *
RECVPREF=’&&PREFIX..&&SSID..&&OBNOD’,                     *
RECVUNIT=SYSDA,                                           *
RECVPS=10,                                                *
RECVSS=2,                                                 *
RECVMAX=,                                                 *
RECVMAXU=,                                                *
             ARCHPREF=’&&USERID..&&SSID’,                             *
             ARCHUNIT=SYSDA,                                          *
             ARCHPS=10,                                               *
             ARCHSS=2,                                                *
SEQI=050,                                                 *
SYNCPNT=00,                                               *
AMS=Y,                                                    *
ALLOC=N,                                                  *
STORCLAS=N,                                               *
DATACLAS=N,                                               *
MGMTCLAS=N,                                               *
             JCLCLEAN=N,                                              *
AUTHSW=(N,R),                                             *
GLID=,                                                    *
DASDMAN=(N,R),                                            *
             CCSID=(E,R),                                             *
IXTYPE=(2,R),                                             *
VVALPROP=(N,R),                                           *
             BPOOLTS=BP0,                                             *
             BPOOLIX=BP0,                                             *
```

**Figure 58 SQL Explorer Default Options Listing (Part 3 of 3)**

```
              LOCK=X,                                                  *
 DISCARDS=(0000,R),                                  *
 BMCSTATS=(N,R),                                     *
 BMCCOPY=(N,R),                                      *
              BMCCHECK=(N,R),                                          *
 BMCLOAD=(N,R),                                      *
 BLDCU=(N,R),                                        *
 BLDBS=(N,R),                                        *
 UTILCOPY=(N,R),                                     *
 BMCUNLD=(N,R),                                      *
 REORG=(N,R),                                        *
              REBLD=(I,R),                                             *
              UNLDCOLL=N,                                              *
              SZDEVT=(3380,R),                                         *
 STATS=(S,R),                                        *
 UPDSTATS=(C,R),                                     *
 TABLEALL=(N,R),                                     *
 UNLDEMPT=(Y,R),                                     *
 STOPCOMM=(N,R),                                     *
 TABLEACC=(Y,R),                                     *
              DUAL=(N,R),                                              *
              REGISTER=(1,R),                                          *
              COPYDD01=R,                                              *
 COPYDD02=N,                                         *
 RECVDD01=N,                                         *
 RECVDD02=N,                                         *
 HSMVOL=,                                            *
 LOCATION=,                                          *
 TAPE1=CART,                                         *
 TAPE2=TAPE,                                         *
 TAPE3=TAPE,                                         *
 ATTN=Y,                                             *
 ENVP=AL400EDE,                                      *
             FEP=AL400EDF,                                            *
 SPP=AL400EDS,                                       *
 ANP=AL400EDA,                                       *
 IMP=AL400EDI,                                       *
 EPP=AEX400AM,                                       *
 EAP=AEX400AA,                                       *
 EIP=DCIINSTL,                                       *
              ASUDOPT=ASUDOPD1,                                        *
              ACTDOPT=ACTDOPD1,                                        *
              ACVPLAN=DAA400D1,                                        *
              DEFERUIX='N'
 END
//LKED.SYSIN DD *
 NAME PSSDOPD1(R)
```

***NOTE***

**,R** in the variable syntax indicates that the specified value will refresh the existing value of the variable in the user's ISPF profile data set, if the time stamp of the DOPTs is later than the time stamp in the user's ISPF profile member.

# Default Option Descriptions

Table B-1 describes the DOPTs that are listed in Figure 58. In some cases, the default value for the option is provided. Some of these options are shared among ALTER® for DB2, CHANGE MANAGER for DB2, CATALOG MANAGER for DB2, DASD MANAGER PLUS for DB2, and SQL Explorer for DB2.

**Table B-1 Default Option Descriptions (Part 1 of 10)**

| Option | Description |
|---|---|
| **ACTDOPT=ACTDOPD1** | Specifies the name of the CATALOG MANAGER for DB2 product's DOPTs module that the client for SQL Explorer will use to interact with CATALOG MANAGER. This parameter is used only if CATALOG MANAGER is installed. |
| **ACVPLAN=DAAvrmD1** | Specifies the main DB2 plan for the client for SQL Explorer. |
| **ALLOC=N** | Indicates the allocation units to use for data sets that are managed by System Managed Storage (SMS). If the AMS is set to **Y**, then this option determines how SQL Explorer allocates space for VCAT-defined DB2 objects that SMS manages. The DOPTs parameters are as follows:<br><br>**C**cylinders<br><br>**K**kilobytes<br><br>**M**megabytes<br><br>**N**SMS not in use (default)<br><br>**T**tracks |
| **AMS=Y** | Controls whether Analysis, by default, generates AMS statements (IDCAMS DELETE and CREATE) in the worklist. You can use the **INCLUDE (AMS)** keyword to override this value. An entry of **N** generates a worklist -STOP command that allows you to complete the DELETE and DEFINE commands before the DB2 object CREATE commands that are located later in the worklist (**Y** or **N**). |
| **ANP=ALvrmcDA** | Defines the Analysis plan name. |
| **ARCHPPREF='&&USERID..&&SSID'** | Specifies the high-level qualifier or prefix for data sets that is used for a BMC Software utility archive. |
| **ARCHPS=10** | Indicates the primary space allocation, in cylinders, for BMC Software utility archive data sets. |
| **ARCHSS=2** | Indicates the secondary space allocation, in cylinders, for BMC Software utility archive data sets. |
| **ARCHUNIT=SYSDA** | Specifies the default UNIT that is used for BMC Software utility archive data sets. |
| **ASUDOPT=ASUDOPD1** | Specifies the name of the DASD MANAGER PLUS product's DOPTs module that the client for SQL Explorer will use to interact with DASD MANAGER PLUS. This parameter is used only if both DASD MANAGER PLUS is installed. |
| **ATTN=Y** | Allows you to press the ATTENTION key to interrupt processing when **ATTN=Y**. You can use this option to stop processing, for example, when building a Mixed List in ALTER or CHANGE MANAGER (**Y** or **N**). |

**Table B-1 Default Option Descriptions (Part 2 of 10)**

| Option | Description |
|---|---|
| **AUTHSW=N** | Controls the method of authorization-ID switching that Analysis uses.<br><br>If you specify **AUTHSW=Y**, -AUTH commands are used in the worklist to switch the authorization ID for subsequent SQL statements and reBINDs. In this mode, you can add -SETS commands to the worklist for setting the authorization ID with SET CURRENT SQLID statements.<br><br>If you specify **AUTHSW=N**, -SETS commands are generated for switching the authorization ID, and -AUTH commands are not allowed.<br><br>If you specify **AUTHSW=B**, both -AUTH and -SETS commands are used. -AUTH commands are generated to set the original CREATEDBY values. -SETS commands are generated to set new OWNER values for all objects. The **B** option also causes authorization-ID switching before CREATE TABLE and CREATE INDEX statements, which is not done under either of the other options.<br><br>When the AUTHSW keyword is used in the ALUIN input stream, it is equivalent to **AUTHSW=Y** in the DOPTs module.<br><br>Do not use the AUTHSW keyword in the following situations:<br><br>If **AUTHSW=N** is in the DOPTs module.<br><br>If you are using a global authorization ID (GLID).<br><br>If your site does not use DB2 secondary AUTHIDs, set **AUTHSW=Y**. Otherwise, set **AUTHSW=N**. If you require that the CREATEDBY field in the DB2 catalog remain unchanged after updates, then set **AUTHSW=B**.<br><br>Setting **AUTHSW=B** is not recommended because of a potential security exposure. This exposure exists because the DB2 catalog does not accurately reflect the primary authorization ID of the creator of the objects. If you must set **AUTHSW=B**, use the sample security exit (ALUEUSX1) to avoid the security exposure. |
| **BLDBS=N** | This DOPT is no longer used. |
| **BLDCU=N** | This DOPT is no longer used. |
| **BMCCHECK=N** | Specifies whether to use the BMC Software CHECK PLUS utility in place of the IBM CHECK DATA utility for checking referential constraint violations in DB2 table spaces (**Y** or N). |
| **BMCCOPY=N** | Specifies whether to use the BMC Software COPY PLUS utility in place of the IBM COPY utility. The DOPTs parameters are defined as follows:<br><br>**Y**Use BMCCOPY.<br><br>**N**Use IBMCOPY.<br><br>**X**Do not include copy operations.<br><br>**F**Do not include copy operations, but do start objects in copy pending status with ACCESS(FORCE). |
| **BMCLOAD=N** | Indicates whether to use the BMC Software LOADPLUS utility for loads in place of the IBM LOAD utility (**Y** or **N**). |
| **BMCSTATS=N** | This DOPT is no longer used. See parameters STATS and UPDSTATS. |

**Table B-1 Default Option Descriptions (Part 3 of 10)**

| Option | Description |
|---|---|
| **BMCUNLD=N** | Specifies whether to use the BMC Software UNLOAD PLUS utility in place of ALTER UNLOAD (**Y** or **N**). |
| **BPOOLIX=BP0** | Indicates the buffer pool ID for user indexes. Valid values include BP0 through BP49. The value should match the values specified for the DB2 initialization parameter module, DSNZPARM, on the DB2 subsystem on which the option is used. |
| **BPOOLTS=BP0** | Indicates the buffer pool ID for user data. Valid values include:<br><br>BP0 through BP49<br><br>BP8K0 through BP8K9<br><br>BP16K0 through BP16K9<br><br>BP32K,BP32K1 through BP32K9<br><br>The value should match the values specified for the DB2 initialization parameter module, DSNZPARM, on the DB2 subsystem on which the option is used. |
| **CATAUDIT=N** | Specifies the DDL audit logging indicator. If you have CATALOG MANAGER installed, an entry of **Y** causes Execution to log executed DDL statements in the CATALOG MANAGER DDL Audit Log (**Y** or **N**). |
| **CATRECOV=N** | Specifies the Drop Recovery indicator. This parameter is useful only if you have CATALOG MANAGER installed. Type **Y** if you want the Execution component to invoke CATALOG MANAGER to log recovery information in the CATALOG MANAGER drop-recovery tables for the objects that are dropped when the Work ID is executed. See the *CATALOG MANAGER for DB2 Reference Manual* for information about drop recovery. |
| **CCSID=E** | Provides the default encoding scheme for databases that are created using ALTER or CHANGE MANAGER.<br><br>**A**ASCII<br><br>**E**EBCDIC<br><br>**U**UNICODE |
| **COPYDD01=R, COPYDD02=N, RECVDD01=N, RECVDD02=N** | Defines image copies for the BMC Software COPY PLUS, REORG PLUS, and LOADPLUS utilities.<br><br>The DOPTs parameters are defined as follows:<br><br>**N**no<br><br>**C**copy<br><br>**R**register and copy<br><br>These DOPTs control the input keywords to Analysis as follows:<br><br>Local-copy parameters (parms) for the COPYDDN keyword can be COPY01 and COPY02, separated by commas or blanks.<br><br>Remote-copy parameters (parms) for the COPYDDN keyword can be RECV01 and RECV02, separated by commas or blanks. |

**Table B-1 Default Option Descriptions (Part 4 of 10)**

| Option | Description |
|---|---|
| **DASDMAN=Y** | Indicates whether version 5.1 or later of DASD MANAGER PLUS is installed (**Y** or **N**). ALTER and CHANGE MANAGER select DB2 catalog statistics for space estimation. When **DASDMAN=Y**, any statistics from the BMCSTATS tables are merged. |
| **DATACLAS=N** | Indicates whether support for the DATACLAS parameter is required for VCAT-defined DB2 objects (**Y** or **N**). |
| **DATE=&SYSDATC** | Indicates a parameter that is used only if you have ASMA90 as your assembler |
| **DB2CAT or DB2CT=('DBDBCAT')** | This DOPT is no longer used. See the VCAT control table variable of the DMCDB2 CLIST. |
| **DBRM1, DBRM2, DBRM3** | Names the three default DBRM libraries. |
| **DBRMLIB=N** | Includes the LIBRARY parameter on the BIND statement for plans and packages (**Y** or **N**).<br><br>A disadvantage to adding the LIBRARY parameter to the BIND PLAN command is that the order of the libraries on the BIND could be incorrect. If some DBRMs are present in multiple libraries, ALTER and CHANGE MANAGER cannot guarantee that the concatenation will result in every DBRM coming from the correct library. |
| **DEFERUIX=N** | For DB2 version 5 and later, allows ALTER and CHANGE MANAGER to create unique indexes with the DEFER YES parameter (**Y** or **N**). |
| **DISCARDS=nnnn** | Used by ALTER and CHANGE MANAGER to specify the number of discard data sets to allow. The parameter *nnnn* specifies the number of discards in a range from 0 to 9999. DISCARDS=0 means that no maximum number of discards exists.<br><br>With DISCARDS=1, the product generates one **discard DD, //SYSDISC** for the entire run, and DISCARDS 1 is generated as a LOAD parameter. JCL that is generated minimally sizes data sets for SYSDS001 and SYSER001 DDs. If any records must be discarded, this action causes the load utility to terminate with a return code of 8.<br><br>If the DISCARDS option is set to any value other than 1, a different discard DD (//SYSD*nnnn*) is generated for each load, and DISCARDS *n* is generated as a LOAD parameter for each LOAD command (where *n* is the maximum number of discard records). This action causes the load to terminate if the discard maximum is reached. If fewer records are discarded, the discard file contains the records and execution proceeds to the next step in the worklist. |
| **EAP=AEXvrmAA** | Defines the Execution Authorization plan name, which determines if a user is authorized to run Execution. |
| **EIP=DCIINSTL** | Defines the Installation plan name. |
| **ENVP=ALvrmcDE** | Defines the Environment plan name, which is used to display ALTER and CHANGE MANAGER environment information. |
| **EPP=AEXvrmAM** | Defines the Execution primary plan name. |
| **EURO=N** | Instructs ALTER, CHANGE MANAGER, and DASD MANAGER PLUS to expect numbers in the European format (comma used for the decimal point) and to create output in European decimal format (**Y** or **N**).<br><br>This parameter is particularly important when ALTER or CHANGE MANAGER parses index LIMITKEY values that are separated by commas. If the EURO keyword is present, ALTER or CHANGE MANAGER requires delimiting commas to be followed by blanks.<br><br>The Import, Specification, Baseline, and Compare components use the value for EURO from the DOPTs module, but do not support use of the EURO keyword in the ALUIN parameter input data stream. |

**Table B-1 Default Option Descriptions (Part 5 of 10)**

| Option | Description |
|---|---|
| **FEP=ALvrmcDF** | Defines the Front End plan name. |
| **GLID=id** | Defines a global authorization ID (GLID). This authorization ID is used instead of the authorization ID of the person who submits the Analysis job. The worklist begins with a -GLID command that switches authorization to the GLID. |
| **HSMVOL=vol** | Specifies the volume ID that indicates an archived data set if you are using a disk management system. If this volume ID is encountered, ALTER or CHANGE MANAGER uses a template of default values for data set allocation. |
| **IMP=ALvrmcDI** | Defines the Import plan name. |
| **ISPSLIB** | Indicates the value that the SQL Explorer client uses for generating JCL. |
| **IXTYPE=2** | Indicates the default index type that ALTER and CHANGE MANAGER use when no type is specified in a CREATE INDEX command.<br><br>**1**Type 1 index<br><br>**2**Type 2 index (DB2 version 5 and later) |
| **JC1='//&&USERID.&&JOBCHAR JOB (ACCT),"&&PGMR",'**<br><br>**JC2='// CLASS=A, MSGCLASS=X,MSGLEVEL=(1,1),**<br><br>**JC3='// NOTIFY=&&USERID'**<br><br>**JC4='//*'**<br><br>**JC5='//*'** | Defines the jobcard that the Front End uses when generating JCL. Symbolic variables can be used and are described in the Symbolic Variable appendix of the respective products' reference manuals. |
| **JCLCLEAN=N** | Allows you to generate a job step that automatically deletes many of the permanent (also known as non-temporary) data sets that the Execution component creates. These data sets are created during worklist processing and have a disposition (`NEW,CATLG,CATLG`). The automatic delete step is performed only if the condition code that is returned from any previous job step is four or less (**Y** or **N**). |
| **JDSN='"&&PREFIX..ANALYSIS(&&WORKID)"'** | Defines the default data set name that is used for Analysis JCL. This data set can be either a sequential or a partitioned data set. Hardcoding a member name is not recommended for a partitioned data set. The products automatically use the Work ID as the member name. |
| **JDSNBG='"&&PREFIX..JCLGEN(&&WORKID)"'** | For DB2 version 5 and later, defines the default data set name that is used for batch JCL Generation. This data set can be either a sequential or partitioned data set. Hardcoding a member name is not recommended for a partitioned data set. The products automatically use the Work ID as the member name. |
| **JDSNE='"&&PREFIX..EXEC(&&WORKID)"'** | Defines the default data set name that is used for Execution JCL. This data set can be either a sequential or a partitioned data set. Hardcoding a member name is not recommended for a partitioned data set. The product automatically uses the Work ID as the member name. |
| **LOCATION** | This DOPT is no longer used except for Single Point Entry when the variable is set to **SPE_METHOD**. SPE_METHOD allows the product to display the remote SSID that the packages are accessing. In all cases, the product determines the SSID location from the current server register. |

**Table B-1 Default Option Descriptions (Part 6 of 10)**

| Option | Description |
|---|---|
| **LOCK=X** | Controls the SQL LOCK TABLE statements that the Execution component issues for ALTER UNLOAD statements. The LOCK parameter does not apply to the BMC Software UNLOAD PLUS product.<br><br>**S**Issue the SQL LOCK TABLE IN SHARE MODE statement.<br><br>**X**Issue the SQL LOCK TABLE IN EXCLUSIVE MODE statement.<br><br>**N**Do not issue SQL LOCK TABLE statements. |
| **LOG=N** | Specifies that records be logged during loads that use the IBM LOAD utility (**Y** or **N**). |
| **MGMTCLAS=N** | Indicates whether support for the MGMTCLAS parameter is required for VCAT-defined DB2 objects (**Y** or **N**). |
| **PC=PSS** | Defines the product code to the SQL Explorer component. |
| **PIC=N** | (Pre-Image Copy) Indicates whether an image copy should be taken of each table space before a database is dropped, a table is dropped, or the table space is dropped or reorganized (**Y** or **N**). |
| **PRODUCT='PRODUCT NAME'** | Defines the product name. For example, **PRODUCT = 'SQL EXPLORER'**. |
| **REBLD=I** | For DB2 version 6 and later, specifies whether to use the rebuild utility from IBM or BMC Software or no rebuild utility. If **REBLD=N**, eligible indexes are not created with DEFER YES. If a nonunique index is dropped or created in a worklist, and its parent table is not dropped or created in the worklist, the index is created with DEFER YES if **REBLD=I** or **REBLD=B**.<br><br>The DOPTs parameters are defined as follows:<br><br>**B**BMCRECOVER<br><br>**I**IBMREBUILD<br><br>**N**NO REBUILD |
| **RECOV=I** | For DB2 version 5 and earlier, specifies whether to use the recover utility from IBM or BMC Software or no recover utility. If **RECOV=N**, eligible indexes are not created with DEFER YES. If a non-unique index is dropped or created in a worklist, and its parent table is not dropped or created in the worklist, the index is created with DEFER YES if **RECOV=I** or **RECOV=B**.<br><br>The DOPTs parameters are defined as follows:<br><br>**B**BMCRECOVER<br><br>**I**IBMRECOVER<br><br>**N**NO RECOVER |
| **RECVMAX** | Indicates the offsite-copy threshold, in cylinders, above which the utility uses the secondary unit for allocation. If the size of a data set exceeds the threshold, the utility uses the secondary unit. To avoid using the secondary unit, specify 0. |
| **RECVMAXU** | Indicates the offsite-copy secondary, or alternate, unit that is used for any overflow. |

**Table B-1 Default Option Descriptions (Part 7 of 10)**

| Option | Description |
|---|---|
| **RECVPREF='&&PREFIX..&&SSID..&&OBNOD'** | Defines the default prefix (high-level qualifier) that is used for the RECV*nnn* recovery data sets. The &&OBNOD symbolic variable resolves to database.&SPNAME. &SPNAME resolves to a table space name or to an index space name, depending on the type of object that is being copied. |
| **RECVPS=10** | Defines, in cylinders, the default primary space allocation for RECV*nnn* recovery data sets. |
| **RECVSS=2** | Defines, in cylinders, the default secondary space allocation for RECV*nnn* recovery data sets. |
| **RECVUNIT=SYSDA** | Defines the default unit that is used for creating RECV*nnn* recovery data sets. |
| **REORG=N** | Indicates whether to generate reorganizations in worklists for operations which require reorganizing table spaces and indexes. Changes made to attributes such as PRIQTY, SECQTY, PCTFREE, FREEPAGE, and VOLUME (for VCAT-defined partitions) can cause placement of reorganization commands in the worklist. If reorganizations are to be generated, this option also indicates whether to use the BMC Software REORG PLUS product in place of the IBM REORG utility.<br><br>**B**Generate BMC reorganizations in worklists.<br><br>**I**Generate IBM reorganizations in worklists.<br><br>**N**Do not generate reorganizations in worklists (default). |
| **SDSN=SYSOUT** | Specifies the default data set for diagnostic messages for Analysis. This option can be a sequential file, the keyword SYSOUT, or TERM (terminal). If you use SYSOUT, the diagnostic messages are written to the JES SPOOL. If you use TERM, the diagnostic messages are written to your terminal. |
| **SDSNE=SYSOUT** | Specifies the default data set for diagnostic messages for Execution. This option can be a sequential file or the keyword SYSOUT. If you use SYSOUT, the diagnostic messages are written to the JES SPOOL. |
| **SEQI=050** | Defines the sequence-number increment for worklists and CDL files. |
| **SL1=('"HLQ.LOAD"')** | Specifies the STEPLIB library that contains the BMC Software load modules. |
| **SL2=('"SYS1.DSNEXIT"')** | Specifies the optional first STEPLIB library for DB2 load modules. This library is concatenated to the library that keyword SL1 specifies. |
| **SL3=('"SYS1.DSNLOAD"')** | Specifies the optional second STEPLIB library for DB2 load modules. This library is concatenated to the library that keywords SL1 and SL2 specify. |
| **SL4=('"SYS1.OTHER.LOADLIB1"')** | Specifies optional additional STEPLIB libraries. |
| **SL5=('"SYS1.OTHER.LOADLIB2"')** | Specifies optional additional STEPLIB libraries. |
| **SPP=ALvrmcDS** | Defines the Specification plan name. |
| **SSID=DB2** | Identifies the DB2 subsystem ID (SSID). The SSID must match the -SSID command in the worklist. This parameter is required. |

**Table B-1 Default Option Descriptions (Part 8 of 10)**

| Option | Description |
|---|---|
| **STATS=S** | For DB2 version 5.1 and later, indicates what type of statistics are generated. The DOPTs parameters are defined as follows:<br><br>**S**Standalone—The worklist generates either a -BMCS or -RNST command in the worklist.<br><br>**U**Utility—The worklist combines statistics with a utility (Reorg, Copy, Load) whenever possible.<br><br>**X**No statistics are generated. |
| **STOPCOMM=N** | For DB2 version 5.1 and later, indicates whether an AT (COMMIT) command is generated in a worklist when a STOP command is created. |
| **STORCLAS=N** | Indicates whether support for the STORCLAS parameter is required for VCAT-defined DB2 objects (**Y** or **N**). |
| **SWPS=10** | Defines, in cylinders, the default primary space allocation for sort work. |
| **SWSS=2** | Defines, in cylinders, the default secondary space allocation for sort work. |
| **SWU=SYSDA** | Describes the sort work unit. |
| **SYNCPNT = parm** | Creates additional -SYNC commands in a worklist, based on the number of -SQL commands since the last -SYNC command. The variable parm specifies the maximum number of -SQL commands that can be in the worklist before a -SYNC command is created.<br><br>The option also places an additional -SYNC command before the next -SQL command. Valid values for parm are from 0 to 99. Any -SYNC command in the worklist resets the count of -SQL commands to zero. -SYNC commands that this keyword generates are in addition to the -SYNC commands that Analysis automatically generates. |
| **SYSCMAX** | Indicates the SYSCOPY threshold, in cylinders, above which the utility will use the secondary unit for allocation. If the size of a data set exceeds the threshold, the utility uses the secondary unit. To avoid using the secondary unit, specify 0. |
| **SYSCMAXU** | Indicates the SYSCOPY secondary, or alternate, unit that is used for any overflow. |
| **SYSCPREF='&&PREFIX..&&SSID..&&OBNOD'** | Defines the default SYSCOPY data set prefix. The &&OBNOD symbolic variable resolves to database.&SPNAME. &SPNAME resolves to a table space name or to an index space name, depending on the type of object that is being copied. |
| **SYSCPS=10** | Defines, in cylinders, the default SYSCOPY primary space allocation. |
| **SYSCSS=2** | Defines, in cylinders, the default SYSCOPY secondary space allocation. |
| **SYSCUNIT=SYSDA** | Defines the default SYSCOPY unit. |
| **SYSRMAX** | Indicates the SYSREC threshold, in cylinders, above which the utility uses the secondary unit for allocation. If the size of a data set exceeds the threshold, the utility uses the secondary unit. To avoid using the secondary unit, specify 0. |
| **SYSRMAXU** | Indicates the SYSREC secondary, or alternate, unit that is used for any overflow. |
| **SYSRPREF='&&PREFIX..&&SSID..&&WORKID8'** | Defines the default SYSREC data set prefix. |
| **SYSRPS=10** | Defines, in cylinders, the default SYSREC primary space allocation. |
| **SYSRSS=2** | Defines, in cylinders, the default SYSREC secondary space allocation. |
| **SYSRUNIT=SYSDA** | Defines the default SYSREC unit. |

**Table B-1 Default Option Descriptions (Part 9 of 10)**

| Option | Description |
|---|---|
| **SYSTYPE=S** | Defines the installation's character set.<br><br>**M**mixed<br><br>**S**single-byte only |
| **SZDEVT=3380** | Specifies the device type for data set sizing for JCL Generation. Valid values are 3380 and 3390. The default is 3380. |
| **TABLEACC=Y** | For DB2 version 5.1 and later, indicates whether all tables remain accessible during execution (**Y** or **N**). |
| **TABLEALL=N** | For DB2 version 5.1 and later, specifies the STATS utility to gather information for all columns of tables.<br><br>**N**Do not include the TABLE(ALL) parameter on stand-alone stats runs.<br><br>**Y**Include the TABLE(ALL) parameter on stand-alone stats runs. |
| **TAPE1=CART, TAPE2=TAPE, TAPE3=TAPE** | Defines the valid installation tape unit names for your site. |
| **TIMEPARM** | Indicates the TIME limit in minutes for each step in a batch job stream. |
| **TSOSX=N** | Specifies whether your site uses the TSO Submit exit to supply the job statements at submit time (**Y** or **N**). |
| **UNLDCOLL=N** | Indicates the explicit column list that is required on all BMC Software UNLOAD PLUS unloads (**Y** or **N**). |
| **UNLDEMPT=Y** | For DB2 version 5.1 and later, specifies whether the tables that RUNSTATS indicates as empty are unloaded. |
| **UPDSTATS=C** | For DB2 version 5.1 and later, specifies which statistics are updated. The DOPTs parameters are defined as follows:<br><br>**A**All—The DASD tables and the DB2 Catalog tables are updated. BMCSTATS is selected.<br><br>**B**BMC DASD tables—Only the DASD tables are updated. BMCSTATS is selected.<br><br>**C**DB2 Catalog—Only the DB2 Catalog tables are updated. RUNSTATS is selected. |
| **UTILCOPY=N** | Determines whether other utilities or a copy utility creates an image copy during loads.<br><br>**Y**Image copies are created by utilities other than the copy utilities whenever possible. If the utilities cannot create a copy, a separate copy step is generated.<br><br>**N**A separate copy step generates all copies that the specific copy utility takes (either the IBM COPY utility or the BMC Software COPY PLUS utility). |
| **VVALPROP=N** | Specifies whether ALTER or CHANGE MANAGER supports text propagation for extended views (**Y** or **N**). |
| **VRM=vrmmd** | Indicates the version, release level, maintenance level, and DB2 exploited version (where D indicates version 5.1, E indicates version 6.1, and F indicates version 7.1 or later). |
| **WDC** | Indicates the Data Facility Storage Management Subsystem (DFSMS or SMS) data class name, used at data set allocation time, to define the allocation attributes of the data set. A data class name is not required, even for SMS data sets. WDC will appear as "DATACLAS= " in the JCL for workfiles. |

**Table B-1 Default Option Descriptions (Part 10 of 10)**

| Option | Description |
|---|---|
| **WDSN="'&&PREFIX..&&SSID..&&WORKID"'** | Defines the default data set name for a worklist that Analysis generates. |
| **WLPS=15** | Defines, in tracks, the default primary space allocation for the worklist. |
| **WLSS=5** | Defines, in tracks, the default secondary space allocation for the worklist. |
| **WLU=SYSDA** | Defines the default worklist unit. |
| **WMC** | Specifies the SMS management class name, used at data set allocation time, to define the migration, retention, and backup requirements of the data set. WMC will appear as "MGMTCLAS= " in the JCL for workfiles. |
| **WPS=10** | Defines, in cylinders, the default primary space allocation for the work data set. |
| **WSC** | Specifies the SMS storage class name, used at data set allocation time, to define the processing requirements of the data set. WSC appears as "STORCLAS= " in the JCL for nontape workfiles. |
| **WSS=2** | Defines, in cylinders, the default secondary space allocation for the work data set. |
| **WU=SYSDA** | Defines the default work data set unit. |

# Default Options Refresh Feature

The DOPTs module is used by the SQL Explorer client. If you need to reset the values in the DOPTs module, SQL Explorer provides a refresh feature. This feature modifies one or more option values for all of the product's users. To refresh an option value in all existing user profiles, enclose the option value in parentheses and include ,R after the value inside the parentheses, as in the following example:

```
SSID=(DB2J,R),                                                    *
```

***NOTE***

Do not drop the continuation comma after the closing parenthesis or the continuation character in column 72.

This example refreshes the default subsystem ID for all of the product's users.

The ,R in the variable syntax indicates that the value specified will refresh the existing value of the variable in the user's ISPF profile data set, if the time stamp of the DOPTs is later than that in the user's ISPF profile member.

## To Refresh Your User Options

If you have problems refreshing your user options, complete the following steps:

1 Verify that the refresh option is coded on the correct macro listing keyword in the DOPTs assembly member.

2 Verify that the DOPTs assembly was completed successfully with a return code of 0.

If you get assembly errors, compare your DOPTs listing with one that the installation process generated. Some common errors are as follows:

- missing comma delimiter after keyword value
- missing continuation character in column 72
- incorrect symbol-variable substitution
- missing or unbalanced single quotation marks

3 Verify that the DOPTs module assembly is updating the correct load library.

The SYSLMOD ddname statement should reference the load library where SQL Explorer resides.

Unlike the other DOPTs parameters, the plan names are used directly by the SQL Explorer client. If you must specify different plan-name values for each subsystem, you need multiple DOPTs modules.

## Single and Multiple Installation Default Modules

The module PSSDOPD1 establishes default processing options for SQL Explorer. You can generate one DOPTs module for all of a product's SSIDs to share, or you can generate customized DOPTs modules for each SSID.

### *prd*DOPD1 Options Module

The job that assembles and links the installation DOPTs module is named $*xnn*DOPT in the JCL data set that the Install System uses to install the product (*HLQ*.INSTALL.JCL). A copy of a stand-alone DOPTs job is placed in the *HLQ*.CNTL library. When run, this job creates a DOPTs module in the products' load library. The default name of the DOPTs stand-alone job and module is PSSDOPD1.

You can change this name in the Install System panels. Keep track of any name changes that you make.

### Single Options Module

If the DB2 subsystems are using the same product load library, they may optionally share the same options load module in that library. If you generate only one options module for the load library, users must override the options that relate to a specific DB2 subsystem at the beginning of a session for each product. These parameters are saved in the user's ISPF profile and are preserved across ISPF sessions.

### Multiple Options Modules

You can specify separate PSSDOPD1 modules for each SSID by using a unique name for each module. The Install System panels prompt you for the names, and you can assign names that identify the SSIDs on which you are installing the product.

In most cases, only the SSID name will be different for each DOPTs module. BMC Software recommends that you include the refresh feature for this option, which causes the program to use the SSID from the DOPTs module rather than the SSID that was last saved in your ISPF profile. You do not need to specify different plan names or object names for subsequent products or SSID systems.

When you start the SQL Explorer client, the unique name of the DOPTs module for each SSID specified in member INI#ACV is passed to the product. The INI#ACV member is referenced in the PATROLDB started task.

# Configuring the UIM Server

This appendix applies only to SmartDBA System Performance for DB2.

This appendix describes configuration options for the UIM server. The following topics are presented:

# Introduction

The UIM server is initially configured during installation. You may want to view or alter the original configuration of the UIM server. You can change the following UIM server configuration options permanently:

- port number
- console timeout
- server-side storage data sets
- tracing

You change all of these options by using variables in the startup member of the configuration file.

Each UIM server requires a configuration member, called the startup member, that describes the unique characteristics of each server. This member is specified as a parameter in the UIM server procedure.

The sample library contains a template for the startup member, named #NORMAL. During installation, the #NORMAL member is customized, given the same name as the started task procedure, and copied to the configuration file.

Figure 59 shows the #NORMAL member template.

**Figure 59 #NORMAL Member Template (Part 1 of 2)**

```
<BMCHTTP>

 <BMC_PARM   ID="PORT"
 VALUE="9999" />
 <BMC_PARM   ID="AUTH_TIMEOUT_SECS"
 VALUE="1800" />
 <BMC_PARM   ID="STDMSG_FREEPOOL"
 VALUE="500" />
 <BMC_PARM   ID="LOGMSG_FREEPOOL"
 VALUE="10000" />
 <BMC_PARM   ID="EXT_PREFIX"
 VALUE="EXT#" />
 <BMC_PARM   ID="DFLT_HOMEPAGE"
 VALUE="/dna/index.html" />
 <BMC_PARM   ID="HFS_DIRECTORY"
 VALUE="hlq.HFSDIR" />
 <BMC_PARM   ID="HFS_DATA"
 VALUE="hlq.HFSDATA" />
```

**Figure 59 #NORMAL Member Template (Part 2 of 2)**

```
 <SUBTASK_SHARED_SUBPOOLS>
 <SHSPL_LIST_SASC>78</SHSPL_LIST_SASC>
 <SHSPL_LIST_UIM>51</SHSPL_LIST_UIM>
 <SHSPL_LIST_IMSDBU>17,18,20,27,28,29,30,31</SHSPL_LIST_IMSDBU>
 </SUBTASK_SHARED_SUBPOOLS>

 <TRACE  VALUE="ON" >
 <BMC_PARM   ID="TRACE_ACTION"
 VALUE="TRACEACTION_WARNING" />
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_INFO" /-->
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_ENTRYEXIT" /-->
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_CONTROL" /-->
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_MEMORY" /-->
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_SOCKET" /-->
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_THREAD" /-->
 <!-- BMC_PARM   ID="TRACE_ACTION"
 VALUE="TRACEACTION_WAIT" /-->

 <BMC_PARM   ID="TRACE_COMPONENT"
 VALUE="TRACECOMPONENT_SERVER" />
 <!--BMC_PARM    ID="TRACE_COMPONENT"
 VALUE="TRACECOMPONENT_SERVER_WL" /-->
 <BMC_PARM   ID="TRACE_COMPONENT"
 VALUE="TRACECOMPONENT_CLIENT" />
 <BMC_PARM   ID="TRACE_COMPONENT"
 VALUE="TRACECOMPONENT_REQUEST" />
 <BMC_PARM   ID="TRACE_COMPONENT"
 VALUE="TRACECOMPONENT_EXTENSION" />
 <BMC_PARM   ID="TRACE_COMPONENT"
 VALUE="TRACECOMPONENT_TASKMGR" />
 <BMC_PARM   ID="TRACE_COMPONENT"
 VALUE="TRACECOMPONENT_TASKWKR" />
 <!-- BMC_PARM   ID="TRACE_COMPONENT"
 VALUE="TRACECOMPONENT_LOGTASK" /-->
 <BMC_PARM   ID="TRACE_COMPONENT"
 VALUE="TRACECOMPONENT_EXTERNAL" />
 </TRACE>

</BMCHTTP>
```

The editable variables in the #NORMAL member are defined in Table 42.

**Table 42 #NORMAL Member Variables**

| Variable | Definition | Accepted Value | Reference |
|---|---|---|---|
| <BMC_PARM ID="PORT" VALUE= "9999"/> | | | |
| | port value for the UIM server | a unique numeric value that is between 8000 and 32000 | "Changing the Port Number" on page 265 |
| <BMC_PARM ID="AUTH_TIMEOUT_SECS" VALUE="1800" /> | | | |
| | security authorization timeout for the console | a numeric value in seconds | "Changing the Console Timeout Feature Permanently" on page 266 |
| <BMC_PARM ID="HFS_DIRECTORY" VALUE="hlq.HFSDIR" /> | high-level qualifier for the HFS DIRECTORY data set | according to your site standards, any alpha-numeric value that is eight characters or less | "Changing Server-Side Storage Data Set Names" on page 267 |
| <BMC_PARM ID="HFS_DATA" VALUE="hlq.HFSDATA" /> | high-level qualifier for the HFS DATA data set | according to your site standards, any alpha-numeric value that is eight characters or less | "Changing Server-Side Storage Data Set Names" on page 267 |
| <TRACE VALUE="ON" > | all tracing options on or off | "ON" or "OFF" according to your requirements | "Enabling or Disabling the Overall Tracing Option Permanently" on page 268 |
| <BMC_PARM ID="TRACE_ACTION" VALUE="TRACEACTION_WARNING" /> | specific tracing options on or off | comment or uncomment according to your requirements | "Enabling or Disabling Specific Tracing Options Permanently" on page 269 |

# Changing the Port Number

A port number is the address of a TCP/IP application on an MVS image. A TCP/IP application has one port number that clients use to contact the UIM server.

To change the port number, perform the following steps:

1 Edit your startup configuration member.

***NOTE***

The startup member name is typically the same as the started task procedure name for the UIM server.

2 In your startup configuration member, find the PORT variable.

3 The default port number is 9999.

4 The PORT variable is displayed as follows:

```
<BMC_PARM   ID="PORT"
 VALUE="9999" />
```

5 Change the value of BMC_PARM ID="PORT" from 9999 to a unique numeric value that is between 8000 and 32000.

***WARNING***

Check with your TCP/IP administrator to ensure that you are entering a unique port number. If you do not enter a unique port number, program errors may occur.

# Changing the Console Timeout Feature Permanently

The console is equipped with a timeout security feature. During installation, your system administrator sets the amount of time that all consoles communicating with the UIM server can remain inactive before security authorization expires. When security authorization expires, you are prompted to log on before executing a request.

You can change the timeout feature permanently for all consoles that communicate with the UIM server.

***NOTE***

Performing this task permanently changes timeout feature for all consoles that communicate with the UIM server.

To change the timeout feature for the all consoles permanently, perform the following steps:

***NOTE***

This is a global change that affects all consoles communicating with the UIM server.

1 Edit your startup configuration member.

***NOTE***

The startup member name is typically the same as the started task procedure name for the UIM server.

2 From your startup configuration member, find the AUTH_TIMEOUT_SECS variable.

3 The default number of seconds is 1800.

4 The AUTH_TIMEOUT_SECS variable is displayed as follows:

```
<BMC_PARM   ID="AUTH_TIMEOUT_SECS"
 VALUE="1800" />
```

5 Change the value of BMC_PARM ID="AUTH_TIMEOUT_SECS" from 1800 to any numeric value in seconds.

# Changing Server-Side Storage Data Set Names

The server-side storage data sets store user preferences and dynamic configuration information on the UIM server.

To change the server-side storage data set names, perform the following steps:

1 Edit your startup configuration member.

***NOTE***

The startup member name is typically the same as the started task procedure name for the UIM server.

2 From your startup configuration member, find the HFS_DIRECTORY variable.

3 The HFS_DIRECTORY variable contains the high-level qualifier for the UIM server's server-side storage data set.

4 The HFS_DIRECTORY variable is displayed as follows:

```
<BMC_PARM   ID="HFS_DIRECTORY"
 VALUE="hlq.HFSDIR" />
```

5 Change the value of the high-level qualifier for HFS_DIRECTORY from hlq to an alphanumeric value that is eight characters or less, according to your site standards.

6 From your startup configuration member, find the HFS_DATA variable.

7 The HFS_DATA variable contains the high-level qualifier for the UIM server's server-side storage data set.

8 The HFS_DATA variable is displayed as follows:

```
<BMC_PARM   ID="HFS_DATA"
 VALUE="hlq.HFSDATA" />
```

9 Change the value of the high-level qualifier for HFS_DATA from hlq to an alphanumeric value that is eight characters or less, according to your site standards.

# Enabling or Disabling the Overall Tracing Option Permanently

The product was shipped with the recommended tracing options preset.

To change the overall tracing option permanently, perform the following steps:

1 Edit your startup configuration member.

***NOTE***

The startup member name is typically the same as the started task procedure name for the UIM server.

2 From your startup configuration member, find the TRACE VALUE variable.

3 See Figure 59 on page 262.

4 To enable or disable the overall tracing option, perform one of the following tasks:

5 To enable the overall tracing option, type ON inside the quotation marks.

6 For example: `<TRACE VALUE="ON">`

7 To disable the overall tracing option, type OFF inside the quotation marks.

8 For example: `<TRACE VALUE="OFF">`

9 Verify that the TRACE VALUE has been enabled or disabled:

10 If the overall trace option is enabled, the variable is displayed as follows:

11 `<TRACE VALUE="ON">`

12 If the overall trace option is disabled, the variable is displayed as follows:

13 `<TRACE VALUE="OFF">`

# Enabling or Disabling Specific Tracing Options Permanently

The product was shipped with the recommended specific tracing options preset. This section describes how to change specific tracing options permanently.

## To Verify the Overall Tracing Option is Enabled

To verify that the overall tracing option is enabled, perform the following steps:

1 Edit your startup configuration member.

***NOTE***

The startup member name is typically the same as the started task procedure name for the UIM server.

2 From your startup configuration member, find the TRACE VALUE variables.

3 Figure 60 shows the TRACE VALUE variables.

**Figure 60 TRACE VALUE Variables (Part 1 of 2)**

```
<TRACE  VALUE="ON" >
 <BMC_PARM   ID="TRACE_ACTION"
 VALUE="TRACEACTION_WARNING" />
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_INFO" /-->
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_ENTRYEXIT" /-->
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_CONTROL" /-->
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_MEMORY" /-->
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_SOCKET" /-->
 <!-- BMC_PARM    ID="TRACE_ACTION"
 VALUE="TRACEACTION_THREAD" /-->
 <!-- BMC_PARM   ID="TRACE_ACTION"
 VALUE="TRACEACTION_WAIT" /-->
```

**Figure 60 TRACE VALUE Variables (Part 2 of 2)**

```
<BMC_PARM   ID="TRACE_COMPONENT"
VALUE="TRACECOMPONENT_SERVER" />
<!--BMC_PARM    ID="TRACE_COMPONENT"
VALUE="TRACECOMPONENT_SERVER_WL" /-->
<BMC_PARM   ID="TRACE_COMPONENT"
VALUE="TRACECOMPONENT_CLIENT" />
<BMC_PARM   ID="TRACE_COMPONENT"
VALUE="TRACECOMPONENT_REQUEST" />
<BMC_PARM   ID="TRACE_COMPONENT"
VALUE="TRACECOMPONENT_EXTENSION" />
<BMC_PARM   ID="TRACE_COMPONENT"
VALUE="TRACECOMPONENT_TASKMGR" />
<BMC_PARM   ID="TRACE_COMPONENT"
VALUE="TRACECOMPONENT_TASKWKR" />
<!-- BMC_PARM   ID="TRACE_COMPONENT"
VALUE="TRACECOMPONENT_LOGTASK" /-->
<BMC_PARM   ID="TRACE_COMPONENT"
VALUE="TRACECOMPONENT_EXTERNAL" />
</TRACE>
```

4 Ensure that the overall trace option is enabled.

5 If the overall trace option is enabled, the variable is displayed as follows:

```
<TRACE  VALUE="ON">
```

If the overall trace option is not enabled, edit the variable as necessary to enable it.

# To Enable Specific Tracing Options

To enable specific tracing options, perform the following steps:

1 From the list of specific tracing options, find the option that you want to enable.

For example:

```
<!-- BMC_PARM    ID="TRACE_ACTION"
                 VALUE="TRACEACTION_INFO" /-->
```

2 Remove the exclamation point, hyphens, and space (!-- ) that are displayed between the opening bracket (<) and text (BMC_PARM).

3 Remove the hyphens (--) that are displayed between the forward slash (/) and the closing bracket (>).

4 The specific tracing option is enabled and is displayed as follows:

```
<BMC_PARM     ID="TRACE_ACTION"
              VALUE="TRACEACTION_INFO" />
```

## To Disable Specific Tracing Options

To disable specific tracing options, perform the following steps:

1 From the list of specific tracing options, locate the option that you want to disable.

2 For example:

```
<BMC_PARM     ID="TRACE_ACTION"
              VALUE="TRACEACTION_INFO" />
```

3 Type an exclamation point, two hyphens, and a space (!-- ) between bracket (<) and text (BMC_PARM).

4 Type two hyphens (--) between the forward slash (/) and the closing bracket (>).

The specific tracing option is disabled and is displayed as follows:

```
<!-- BMC_PARM     ID="TRACE_ACTION"
                  VALUE="TRACEACTION_INFO" /-->\
```

# Index

The following codes identify the products associated with product-specific index entries:

## Symbols



## A



## B

# C



# D

# E



# F



# G



# H

# I



# J



# L



# M



# N

# O



# P



# R



# S

# T



# U



# V

# W

# END USER LICENSE AGREEMENT

## NOTICE

**BY OPENING THE PACKAGE, INSTALLING, PRESSING "AGREE" OR "YES" OR USING THE PRODUCT, THE ENTITY OR INDIVIDUAL ENTERING INTO THIS AGREEMENT AGREES TO BE BOUND BY THE FOLLOWING TERMS. IF YOU DO NOT AGREE WITH ANY OF THESE TERMS, DO NOT INSTALL OR USE THE PRODUCT, PROMPTLY RETURN THE PRODUCT TO BMC OR YOUR BMC RESELLER, AND IF YOU ACQUIRED THE LICENSE WITHIN 30 DAYS OF THE DATE OF YOUR ORDER CONTACT BMC OR YOUR BMC RESELLER FOR A REFUND OF LICENSE FEES PAID. IF YOU REJECT THIS AGREEMENT, YOU WILL NOT ACQUIRE ANY LICENSE TO USE THE PRODUCT.**

This Agreement ("**Agreement**") is between the entity or individual entering into this Agreement ("You") and BMC Software Distribution, Inc., a Delaware corporation located at 2101 CityWest Blvd., Houston, Texas, 77042, USA or its affiliated local licensing entity ("BMC"). "You" includes you and your Affiliates. "Affiliate" is defined as an entity which controls, is controlled by or shares common control with a party. IF MORE THAN ONE LICENSE AGREEMENT COULD APPLY TO THE PRODUCT, THE FOLLOWING ORDER OF LICENSE AGREEMENT PRECEDENCE APPLIES: (1) WEB BASED LICENSE AGREEMENT WITH BMC, (2) WRITTEN LICENSE AGREEMENT WITH BMC, (3) SHRINK-WRAP LICENSE AGREEMENT WITH BMC PROVIDED WITH THE PRODUCT, AND (4) THIS ELECTRONIC LICENSE AGREEMENT WITH BMC. In addition to the restrictions imposed under this Agreement, any other usage restrictions contained in the Product installation instructions or release notes shall apply to Your use of the Product.

**PRODUCT AND CAPACITY. "Software"** means the object code version of the computer programs provided, via delivery or electronic transmission, to You. Software includes computer files, enhancements, maintenance modifications, upgrades, updates, bug fixes, and error corrections.

**"Documentation"** means all written or graphical material provided by BMC in any medium, including any technical specifications, relating to the functionality or operation of the Software.

**"Product"** means the Software and Documentation.

**"License Capacity"** means the licensed capacity for the Software with the pricing and other license defining terms, including capacity restrictions, such as tier limit, total allowed users, gigabyte limit, quantity of Software, and/or other capacity limitations regarding the Software. For licenses based on the power of a computer, You agree to use BMC's current computer classification scheme, which is available at http://www.bmc.com or can be provided to You upon request.

**ACCEPTANCE.** The Product is deemed accepted by You, on the date that You received the Product from BMC.

**LICENSE.** Subject to the terms of this Agreement, as well as Your payment of applicable fees, BMC grants You a non-exclusive, non-transferable, perpetual (unless a term license is provided on an order) license for each copy of the Software, up to the License Capacity, to do the following:

A. install the Software on Your owned or leased hardware located at a facility owned or controlled by You in the country where You acquired the license;

B. operate the Software solely for processing Your own data in Your business operations; and

C. make one copy of the Software for backup and archival purposes only (collectively a **"License"**).

If the Software is designed by BMC to permit you to modify such Software, then you agree to only use such modifications or new software programs for Your internal purposes or otherwise consistent with the License. BMC grants You a license to use the Documentation solely for Your internal use in Your operations.

**LICENSE UPGRADES.** You may expand the scope of the License Capacity only pursuant to a separate agreement with BMC for such expanded usage and Your payment of applicable fees. There is no additional warranty period or free support period for license upgrades.

**RESTRICTIONS:** You agree to **NOT**:

A. disassemble, reverse engineer, decompile or otherwise attempt to derive any Software from executable code;

B. distribute or provide the Software to any third party (including without limitation, use in a service bureau, outsourcing environment, or processing the data of third parties, or for rental, lease, or sublicense); or

C. provide a third party with the results of any functional evaluation or benchmarking or performance tests, without BMC's prior written approval, unless prohibited by local law.

**TRIAL LICENSE.** If, as part of the ordering process, the Product is provided on a trial basis, then these terms apply: (i) this license consists solely of a non-exclusive, non-transferable evaluation license to operate the Software for the period of time specified from BMC or, if not specified, a 30 day time period (**"Trial Period"**) only for evaluating whether You desire to acquire a capacity-based license to the Product for a fee; and (ii) Your use of the Product is on an AS IS basis without any warranty, and **BMC, ITS AFFILIATES AND RESELLERS, AND LICENSORS DISCLAIM ANY AND ALL WARRANTIES (INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT) AND HAVE NO LIABILITY WHATSOEVER RESULTING FROM THE USE OF THIS PRODUCT UNDER THIS TRIAL LICENSE ("Trial License")**. BMC may terminate for its convenience a Trial License upon notice to You. When the Trial Period ends, Your right to use this Product automatically expires. If You want to continue Your use of the Product beyond the Trial Period, contact BMC to acquire a capacity-based license to the Product for a fee.

**TERMINATION.** This Agreement shall immediately terminate if You breach any of its terms. Upon termination, for any reason, You must uninstall the Software, and either certify the destruction of the Product or return it to BMC.

**OWNERSHIP OF THE PRODUCT**. BMC or its Affiliates or licensors retain all right, title and interest to and in the BMC Product and all intellectual property, informational, industrial property and proprietary rights therein. BMC neither grants nor otherwise transfers any rights of ownership in the BMC Product to You. Products are protected by applicable copyright, trade secret, and industrial and intellectual property laws. BMC reserves any rights not expressly granted to You herein.

**CONFIDENTIAL AND PROPRIETARY INFORMATION.** The Products are and contain valuable confidential information of BMC (**"Confidential Information"**). Confidential Information means non-public technical and non-technical information relating to the Products and Support, including, without limitation, trade secret and proprietary information, and the structure and organization of the Software. You may not disclose the Confidential Information to third parties. You agree to use all reasonable efforts to prevent the unauthorized use, copying, publication or dissemination of the Product.

**WARRANTY.** Except for a Trial License, BMC warrants that the Software will perform in substantial accordance with the Documentation for a period of one year from the date of the order. This warranty shall not apply to any problems caused by software or hardware not supplied by BMC or to any misuse of the Software.

**EXCLUSIVE REMEDY.** BMC's entire liability, and Your exclusive remedy, for any defect in the Software during the warranty period or breach of the warranty above shall be limited to the following: BMC shall use reasonable efforts to remedy defects covered by the warranty or replace the defective Software within a reasonable period of time, or if BMC cannot remedy or replace such defective copy of the Software, then BMC shall refund the amount paid by You for the

License for that Software. BMC's obligations in this section are conditioned upon You providing BMC prompt access to the affected Software and full cooperation in resolving the claim.

**DISCLAIMER. EXCEPT FOR THE EXPRESS WARRANTIES ABOVE, THE PRODUCT IS PROVIDED "AS IS." BMC, ITS AFFILIATES AND LICENSORS SPECIFICALLY DISCLAIM ALL OTHER WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. BMC DOES NOT WARRANT THAT THE OPERATION OF THE SOFTWARE WILL BE UNINTERRUPTED OR ERROR FREE, OR THAT ALL DEFECTS CAN BE CORRECTED.**

**DISCLAIMER OF DAMAGES. IN NO EVENT IS BMC, ITS AFFILIATES OR LICENSORS LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THIS AGREEMENT, SUPPORT, AND/OR THE PRODUCT (INCLUDING, WITHOUT LIMITATION, LOST PROFITS, LOST COMPUTER USAGE TIME, AND DAMAGE OR LOSS OF USE OF DATA), EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND IRRESPECTIVE OF ANY NEGLIGENCE OF BMC OR WHETHER SUCH DAMAGES RESULT FROM A CLAIM ARISING UNDER TORT OR CONTRACT LAW.**

**LIMITS ON LIABILITY. BMC'S AGGREGATE LIABILITY FOR DAMAGES IS LIMITED TO THE AMOUNT PAID BY YOU FOR THE LICENSE TO THE PRODUCT.**

**SUPPORT.** If Your order includes support for the Software, then BMC agrees to provide support (24 hours a day/7 days a week) (**"Support"**). You will be automatically re-enrolled in Support on an annual basis unless BMC receives notice of termination from You as provided below. There is a free support period during the one year warranty period.

A. **Support Terms.** BMC agrees to make commercially reasonable efforts to provide the following Support: (i) For malfunctions of supported versions of the Software, BMC provides bug fixes, patches or workarounds in order to cause that copy of the Software to operate in substantial conformity with its then-current operating specifications; and (ii) BMC provides new releases or versions, so long as such new releases or versions are furnished by BMC to all other enrolled Support customers without additional charge. BMC may refuse to provide Support for any versions or releases of the Software other than the most recent version or release of such Software made available by BMC. Either party may terminate Your enrollment in Support upon providing notice to the other at least 30 days prior to the next applicable Support anniversary date. If You re-enroll in Support, BMC may charge You a reinstatement fee of 1.5 times what You would have paid if You were enrolled in Support during that time period.

B. **Fees.** The annual fee for Support is 20% of the Software's list price less the applicable discount or a flat capacity based annual fee. BMC may change its prices for the Software and/or Support upon at least 30 days notice prior to Your support anniversary date.

**VERIFICATION.** If requested by BMC, You agree to deliver to BMC periodic written reports, whether generated manually or electronically, detailing Your use of the Software in accordance with this Agreement, including, without limitation, the License Capacity. BMC may, at its expense, perform an audit, at your facilities, of Your use of the Software to confirm Your compliance with the Agreement. If an audit reveals that You have underpaid fees, You agree to pay such underpaid fees. If the underpaid fees exceed 5% of the fees paid, then You agree to also pay BMC's reasonable costs of conducting the audit.

**EXPORT CONTROLS.** You agree not to import, export, re-export, or transfer, directly or indirectly, any part of the Product or any underlying information or technology except in full compliance with all United States, foreign and other applicable laws and regulations.

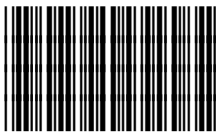
**GOVERNING LAW.** This Agreement is governed by the substantive laws in force, without regard to conflict of laws principles: (a) in the State of New York, if you acquired the License in the United States, Puerto Rico, or any country in Central or South America; (b) in the Province of Ontario, if you acquired the License in Canada (subsections (a) and (b) collectively referred to as the **"Americas Region"**); (c) in Singapore, if you acquired the License in Japan, South Korea, Peoples Republic of China, Special Administrative Region of Hong Kong, Republic of China, Philippines, Indonesia, Malaysia, Singapore, India, Australia, New Zealand, or Thailand (collectively, **"Asia Pacific Region"**); or (d) in the Netherlands, if you acquired the License in any other country not described above. The United Nations Convention on Contracts for the International Sale of Goods is specifically disclaimed in its entirety.

**ARBITRATION. ANY DISPUTE BETWEEN YOU AND BMC ARISING OUT OF THIS AGREEMENT OR THE BREACH OR ALLEGED BREACH, SHALL BE DETERMINED BY BINDING ARBITRATION CONDUCTED IN ENGLISH. IF THE DISPUTE IS INITIATED IN THE AMERICAS REGION, THE ARBITRATION SHALL BE HELD IN NEW YORK, U.S.A., UNDER THE CURRENT COMMERCIAL OR INTERNATIONAL, AS APPLICABLE, RULES OF THE AMERICAN ARBITRATION ASSOCIATION. IF THE DISPUTE IS INITIATED IN A COUNTRY IN THE ASIA PACIFIC REGION, THE ARBITRATION SHALL BE HELD IN SINGAPORE, SINGAPORE UNDER THE CURRENT UNCITRAL ARBITRATION RULES. IF THE DISPUTE IS INITIATED IN A COUNTRY OUTSIDE OF THE AMERICAS REGION OR ASIA PACIFIC REGION, THE ARBITRATION SHALL BE HELD IN AMSTERDAM, NETHERLANDS UNDER THE CURRENT UNCITRAL ARBITRATION RULES. THE COSTS OF THE ARBITRATION SHALL BE BORNE EQUALLY PENDING THE ARBITRATOR'S AWARD. THE AWARD RENDERED SHALL BE FINAL AND BINDING UPON THE PARTIES AND SHALL NOT BE SUBJECT TO APPEAL TO ANY COURT, AND MAY BE ENFORCED IN ANY COURT OF COMPETENT JURISDICTION. NOTHING IN THIS AGREEMENT SHALL BE DEEMED AS PREVENTING EITHER PARTY FROM SEEKING INJUNCTIVE RELIEF FROM ANY COURT HAVING JURISDICTION OVER THE PARTIES AND THE SUBJECT MATTER OF THE DISPUTE AS NECESSARY TO PROTECT EITHER PARTY'S CONFIDENTIAL INFORMATION, OWNERSHIP, OR ANY OTHER PROPRIETARY RIGHTS. ALL ARBITRATION PROCEEDINGS SHALL BE CONDUCTED IN CONFIDENCE, AND THE PARTY PREVAILING IN ARBITRATION SHALL BE ENTITLED TO RECOVER ITS REASONABLE ATTORNEYS' FEES AND NECESSARY COSTS INCURRED RELATED THERETO FROM THE OTHER PARTY.**

**U.S. GOVERNMENT RESTRICTED RIGHTS.** The Software under this Agreement is "commercial computer software" as that term is described in 48 C.F.R. 252.227-7014(a)(1). If acquired by or on behalf of a civilian agency, the U.S. Government acquires this commercial computer software and/or commercial computer software documentation subject to the terms of this Agreement as specified in 48 C.F.R. 12.212 (Computer Software) and 12.211 (Technical Data) of the Federal Acquisition Regulations (**"FAR"**) and its successors. If acquired by or on behalf of any agency within the Department of Defense (**"DOD"**), the U.S. Government acquires this commercial computer software and/or commercial computer software documentation subject to the terms of this Agreement as specified in 48 C.F.R. 227.7202 of the DOD FAR Supplement and its successors.

**MISCELLANEOUS TERMS.** You agree to pay BMC all amounts owed no later than 30 days from the date of the applicable invoice, unless otherwise provided on the order for the License to the Products. You will pay, or reimburse BMC, for taxes of any kind, including sales, use, duty, tariffs, customs, withholding, property, value-added (VAT), and other similar federal, state or local taxes (other than taxes based on BMC's net income) imposed in connection with the Product and/or the Support. This Agreement constitutes the entire agreement between You and BMC and supersedes any prior or contemporaneous negotiations or agreements, whether oral, written or displayed electronically, concerning the Product and related subject matter. No modification or waiver of any provision hereof will be effective unless made in a writing signed by both BMC and You. You may not assign or transfer this Agreement or a License to a third party without BMC's prior written consent. Should any provision of this Agreement be invalid or unenforceable, the remainder of the provisions will remain in effect. The parties have agreed that this Agreement and the documents related thereto be drawn up in the English language. Les parties exigent que la présente convention ainsi que les documents qui s'y rattachent soient rédigés en anglais.

## Notes



*41685*